

digTM

INTO HISTORY



From Cricket Media

MARRY HIM! Pg 2 | **GRANADA FALLS** Pg 14

**Tour the
Alhambra**

Pg 18

**Into the Deep
with Robots**

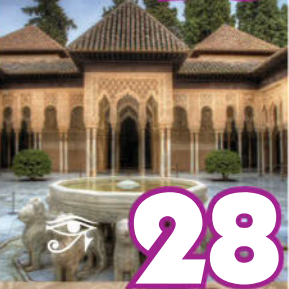
Pg 54



Isabel I of Castile

VISIT...

LANZAROTE
Caliente.COM



EAGLE EYE

We have hidden 4 eyes like the one above in this month's DIG issue (print and digital editions). See how fast you can find each—but, while you are looking, check out the articles in this issue.

And, don't take a peek at the answers on page 40 until you have found all four eagle eyes!

FEATURES

2 Marry Him!

by Theresa Earenfight

4 Not All Was Bliss!

by Barbara F. Weissberger

6 Determined to Succeed

by Charles Beem

10 Auto-de-Fe

by Barbara F. Weissberger

14 Granada Falls

by David Coleman

18 To the East!

by Cristina Giardiola-Griffiths

22 Love + Family

by Charles Beem

24 Her Will

by Theresa Earenfight

28 The Alhambra

by Maria Judith Feliciano

33 Andalusian Queens

by Tom Verde

DEPARTMENTS

1 Five Facts/Map: Iberian Peninsula in 1400s

5 Map: From Spain to the Gulf of Guinea

9 The Calliope Chronicles

26 Fun With Words

36 Interestingly... The Queen's Grammar

by Sarah Novak

37 What's Wrong Here?

38 Ask Away!

40 This & That

41 Off the Shelf/On the Net



illustration by
Tim Oliphant

LET'S GO dig-GING

43 Diving into the Past

44 A Search That Continues

by Toni Carell

47 NOAA and Shipwrecks

by James P. Delgado

48 A Find!

by James P. Delgado

52 The Colors of Sound

by Vitad Pradith

53 In the Headlines: Views of an Antique Land

54 Into the Deep with Robots

by Matthew Lawrence

56 The Adventures of Dr. Dig

57 Artifacts—San Pedro

Musings

When one door closes, fortune usually will open another.

—Spanish author Fernando de Rojas,
contemporary of Isabel I

Check out our
online teacher's guides at
WWW.CRICKETMEDIA.COM/
TEACHER-RESOURCES/

LIKE US ON FACEBOOK
www.facebook.com/cricketmedia



A PARENTS' CHOICE
Gold Award Winner 2009
Silver Award Winner 2010
Silver Award Winner 2013
Gold Award Winner 2014

2012 Teacher's Choice Award winner
George Washington Honor Medal
Award Winner

Indexed and/or Abstracted in: Children's Magazine Guide, Primary Search and Middle Search, Readers' Guide for Young People, Readers' Guide to Periodical Literature, Vertical File Index, and at www.cricketmedia.com

Editorial and Marketing Office: DIG, 70 East Lake Street, Suite 800, Chicago, IL 60601. Telephone: 312-701-1720.

DIG (ISSN 1539-7130) (USPS 000-943) is published 9 times a year, monthly except for combined May/June, July/August, and November/December issues, by Cricket Media, 70 East Lake Street, Suite 800, Chicago, IL 60601. Additional Editorial Office located at 7926 Jones Branch Dr, Ste 870 McLean, VA 22102. Periodicals postage paid at McLean, VA, and at additional mailing offices. One-year subscription (9 issues) \$33.95. Canadian and other foreign subscribers must add \$15.00 per year and prepay in U.S. dollars. GST Registration Number 128950334. For address changes, back issues, subscriptions, customer service, or to renew, please visit shop.cricketmedia.com, email cricketmedia@cdsfulfillment.com, write to DIG P.O. Box 6395, Harlan, IA 51593-1895, or call 1-800-821-0115. Postmaster: Please send address changes to DIG, P.O. Box 6395, Harlan, IA 51593-1895.

Editorial office, 70 E. Lake Street, Suite 800, Chicago, IL 60601. March 2017, Volume 19, Number 3, © 2017, Carus Publishing dba Cricket Media. All rights reserved, including right of reproduction in whole or in part, in any form. For information regarding our privacy policy and compliance with the Children's Online Privacy Protection Act, please visit our website at cricketmedia.com or write to us at CMG COPPA, 70 East Lake Street, Suite 800, Chicago, IL 60601.

Printed in the United States of America.

1st printing Quad/Graphics Midland, Michigan February 2017

From time to time, DIG mails to its subscribers advertisements for other Cricket Media products or makes its subscriber list available to other reputable companies for their offering of products and services. If you prefer not to receive such mail, write to us at DIG, P.O. Box 6395, Harlan, IA 51593-1895.

Iberian Peninsula in 1400s

NOTE: In this issue on Isabel I, we are using the abbreviations B.C.E. (Before the Common Era) and C.E. (Common Era) and not B.C. and A.D. Used presently worldwide, B.C.E. and C.E. have no religious affiliation.



5 Surprising Spain Facts

- 1** You don't have to sing Spain's national anthem—it has no official words!
- 2** In 2013, Spain was ranked as the third most visited country in the world.
- 3** Spain is the second largest country in western Europe, and the largest country in southern Europe.
- 4** In Spain, when the clock chimes 12 times at midnight on New Year's Eve, people throughout the country follow the tradition of eating one grape for each chime—all for luck!
- 5** In Spain, people generally have two last names; the first is their father's, and the second is their mother's.

About the cover: Determination marked Isabel I's personality, as you can see in this 21st-century illustration. The scene combines some of the key events during Isabel's reign: her rule as queen in her own right, with the sword of justice borne before her; her establishment of an Inquisition, implemented by Roman Catholic clergy; and her quest for more lands and a faster route to the East. (Illustration by Bob Berry)

PICTURE CREDITS: Peteri/Shutterstock.com; 1 (globe); Album/Art Resource, NY; 2-3, 4; Yuliya Pdolinnova/Shutterstock.com; 2-3 (flowers); Classic VisionCollection/agefotostock.com; 6; Samira Dragonfly/Shutterstock.com; 6-7 (background); Ken Welsh/Alamy Stock Photo; 7; Alberto Paredes/Alamy Stock Photo; 8; Heritage Image Partnership Ltd./Alamy Stock Photo; 10-11; Iem/Shutterstock.com; 12-13 (background); Photo © Parker/Bridgeman Images; 12, 18; Heritage Image/agefotostock.com; 12-13; Lebrecht Music and Arts Photo Library/Alamy Stock Photo; 14-15; Pictures from History/Bridgeman Images; 16; De Agostini Picture Library/G. Dagli Orti/Bridgeman Images; 16-17, 17; © Ivy Close Images www.ivycloseimages.com; 19, 21; DEA/G. DAGLI ORTI Collection; De Agostini Editore/agefotostock.com; 20; Morphart Creation/Shutterstock.com; Shutterstock.com; 22; © of the image Museo Nacional del Prado/Art Resource, NY; 24-25; andrea cerri ferrari/Shutterstock.com; 28-29; Rolf E. Staerk/Shutterstock.com; 30 (top left); Renata Sedmakova/Shutterstock.com; 30 (bottom left); Harchan/Shutterstock.com; 30-31; rbeirantonio/Shutterstock.com; 32; PRISMO ARCHIVO/Alamy Stock Photo; 36; meek76/Shutterstock.com; 37; Baranova Oksana/Shutterstock.com; 37 (background); Artindo/Shutterstock.com; 44; lady-lack/Shutterstock.com; 44 (shipwrecks in map); © Ships of Discovery: 44-45, 45 (both), 46 (photo and background); courtesy NOAA Okeanos Explorer Program; 47; NOAA: 48-49, 52 (bottom, all); OAR/National Undersea Research Program (NURP); Woods Hole Oceanographic Inst.; 50 (top); © Woods Hole Oceanographic Institution; 50 (bottom), 51; © Paul T. Nicholson; 52 (all); NOAA/OER; 54; NOAA, Boeing, and Coda Octopus/National Archives and Records Administration; 55 (top left); NOAA, NURTEC-UConn, and NUWC-Newsports; 55 (top right); NOAA and NURTEC-UConn; 55 (bottom); © Florida Bureau of Archaeological Research; 57; Liszt Collection Heritage Images/Newscom; back cover (left): Inga spence/Alamy Stock Photo; back cover (right): Cricket Media has made every effort to trace the copyrights of these images.

CONSULTING EDITORS

Charles Beem, professor of history, University of North Carolina, Pembroke; **Toni Carrell**, maritime archaeologist; **David Coleman**, a professor of history and the director of the Honors Program, Eastern Kentucky University; **James P. Delgado**, maritime archaeologist; **Theresa Earenfight**, professor of history, Seattle University; **Maria Judith Feliciano**, specialist in the art and architecture of Islamic Spain; **Cristina Giardiola-Griffiths**, associate professor

in Medieval Literature, University of Delaware; **Matthew Lawrence**, archaeologist with the National Oceanic and Atmospheric Administration's Office of National Marine Sanctuaries; **Vitad Pradith**, active hydrographer; **Della Scott-Iretton**, associate director, Florida Public Archaeology Network; **Barbara F. Weissberger**, emerita professor in the Department of Spanish and Portuguese Studies, University of Minnesota, Twin Cities



STAFF: Rosalie F. Baker, Editor; Nicole Welch, Art Director; Patrick Murray, Designer; James M. O'Connor, Director of Editorial; Christine Voboril, Permissions Specialist; Stephen L. Thompson, Copy Editor; Patricia Silvestro, Proofreader; **EDITORIAL CONSULTANT:** Naomi Pasachoff, Research Associate, Williams College, Williamstown, Massachusetts; **ADVISORY BOARD:** Paul G. Bahn, Archaeologist and Author; Nancy S. Bernard, Archaeologist; Diane L. Brooks, Ed.D., Director (retired), Curriculum Frameworks and Instructional Resources Office, California Department of Education; Vaughn M. Bryant, Director, Palynology Laboratory in Department of Anthropology, Texas A&M University; Ken Burns, Florentine Films; Ross E. Dunn, Professor of History, San Diego State University; Peter Felman, Director, Institute of History, Anthropology and Education; Richard A. Gould, Chairman and Professor, Department of Anthropology, Brown University; Gordon Grimwade, Archaeologist and Writer, Australia; A. Gwynn Henderson, Kentucky Archaeological Society; Donald James Johnson, Professor Emeritus, New York University; Jean Elliott Johnson, Teacher and Director (Retired) of the Asia Society's TeachAsia Project; Martha S. Joukowsky, Professor Emerita, Brown University, Department of Anthropology, Center for Old World Archaeology and Art; Director, Brown University Petra "Great" Temple Excavations; Richard A. Lobban, Jr., Archaeologist and Executive Director Sudan Studies Association; Elena Miklashevich, Kemerovo State University, Russia; Robert B. Pickering, Director of Curatorial Affairs and Public Programs, Gilcrease Museum, and Director, Museum Science and Management, University of Tulsa; Margaret Pruech, Art historian, Archaeologist, and Lecturer in East Asian Art; Joseph M. Pucci, Associate Professor of Classics, Medieval Studies, and Comparative Literature, Brown University; Held Rupp, Past President, World History Association; Shirley J. Scherman, Office of the State Archaeologist, University of Iowa; KC Smith, Museum of Florida History; Sandra Stotsky, Professor of Education Reform, 21st Century Chair in Teacher Quality, University of Arkansas; Elizabeth ten Grotenhuis, Professor Emerita, Boston University, and Head of Birches School in Lincoln, Massachusetts

MARRY H

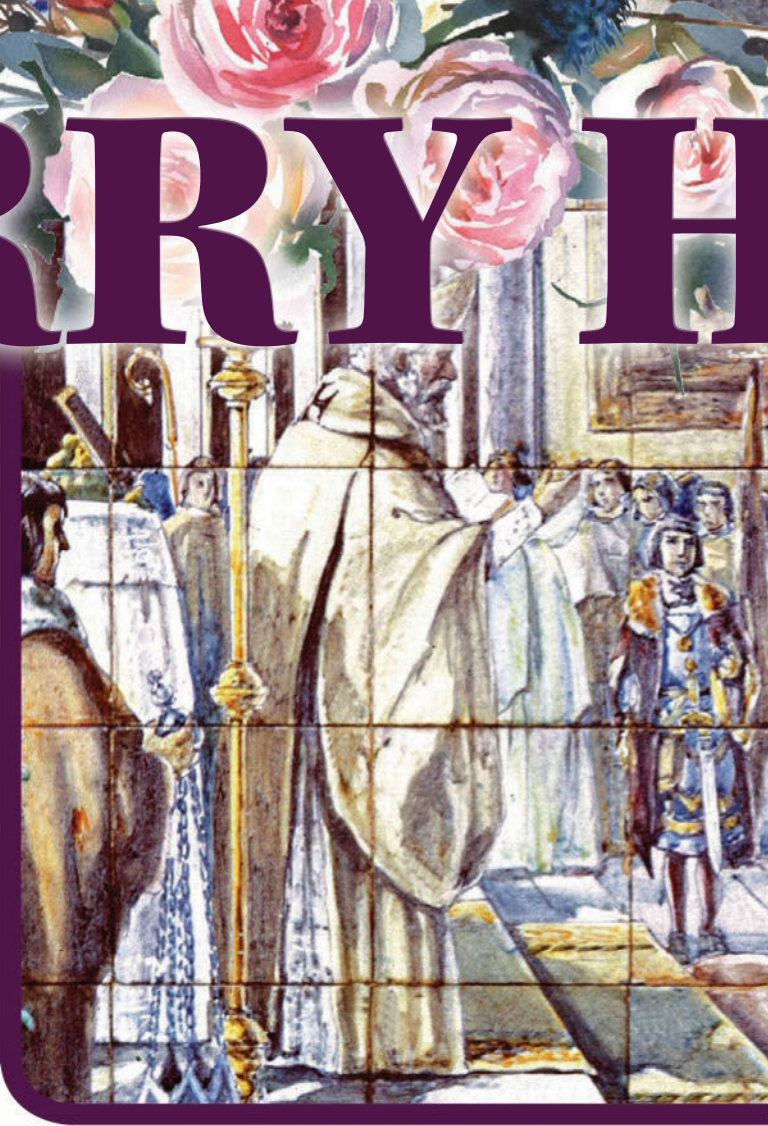
by Theresa Earenfight

The year was 1469, and the 18-year-old Castilian Princess Isabel (also spelled Isabella) was struggling with an important question: Whom should she marry? Marriage is a big decision for any young woman, but for Isabel it was more than personal. She was heir to the throne of Castile, so her decision would affect the entire realm.

The 'Right' Man

Isabel had always been expected to wed a powerful man, perhaps a prince or a duke. Her brother Alfonso's death in 1468, however, had changed everything. Her half-brother, King Enrique IV (also spelled Henry IV), had hoped for a son to inherit and rule his kingdom, but his wife had a girl, Juana, and he was not the father. For this reason, Isabel's claim to the throne was stronger than Juana's. Well aware of this fact, Enrique was determined to make sure that Isabel married the "right" man. He had to be someone strong and intelligent, someone who would rule with Isabel, not dominate her. The question remained: Who was there who was single, royal, and suitable to be the spouse of a young princess and heir-apparent?

Enrique and his advisers searched the kingdom for possible grooms. Fernando, prince of Navarre, was proposed, but Isabel said no. Enrique also suggested his widowed brother-in-law, the very old king of Portugal. He thought such an alliance would make Castile stronger. But Isabel had a



mind of her own and flatly refused. Frustrated by his sister's strong will and the threat of civil war, as the nobles took sides for Isabel or Juana, Enrique suggested that she marry a much older and very rich nobleman from Castile, Pedro Giron. Isabel was appalled at the thought of marrying someone older and just for money or politics. Once again, she refused. Enrique begged her to meet him, and, reluctantly, she agreed. But fate stepped in, and, before they could meet, Pedro died.

Her Choice!

Soon after, war between forces supporting Juana and Isabel broke out. For the sake of peace, Enrique named Isabel his heir. Suddenly, she was an even more desirable bride. Plenty of men—including the kings of England, France, and



Wedding bells ring as Isabel (center left) marries Ferdinand (in blue at right) in Vivero Palace in Valladolid.

IV!

Portugal—put forward candidates. Once again, Isabel carefully considered these prospects, but said no to each one. She had her own idea of who would be a suitable husband. She had looked eastward, to her second cousin, Fernando (also spelled Ferdinand), the heir to the crown of Aragon, and thought such a match would be best for her. Isabel had never met him and did not even know what he looked like, but she had heard good comments about him from her advisors. He was young, only a year younger than she was, and he was a soldier and an athlete. So, Isabel began secret negotiations with Fernando's father, King Juan II.

On October 18, 1469, Isabel and Fernando were formally betrothed and received a **dispensation**

to marry from Pope Pius II. Isabel knew that her actions were risky, but the marriage made so much sense to her that, to avoid any objections or confrontations, she did something extraordinary. She prepared to elope. Her plan was simple. Following the betrothal, she left the royal court, saying that she was on her way to visit the tomb of her brother Alfonso. Fernando, disguised as a servant, crossed Castile secretly and met Isabel in Valladolid. It was love at first sight, and, on October 19, 1469, they married amid joyful celebrations and fireworks.

Theresa Earenfight, a professor of history at Seattle University and author of a number of books on medieval queens in Spain, is currently working on a book about Catherine of Aragon, the first queen of Henry VIII of England.

Dispensation to marry, in this case, meant that the Pope, as the head of the Catholic Church to which both Isabel and Ferdinand belonged, formally decreed that the two could marry even though Church laws forbid marriage between second cousins.

Not All Was Bliss!

Modern historians agree that the marriage of Isabel of Castile and Fernando of Aragon was a highly successful one. On a personal level, there was an immediate attraction between the two when they met and married in October of 1469, before either of them had become a monarch. Out of that grew a love that endured through 35 years of marriage. Another important aspect of their relationship was mutual respect. A written document signed just three months after that first meeting stipulated that each of their kingdoms would remain as a separate unit, with its own laws and traditions. Specifically, Fernando promised that he would not make laws or grant favors or titles in Castile without Isabel's approval.

The two honored that agreement throughout their marriage, which ended with Isabel's death in 1504.

But not all was bliss.

Only five of the children born to Isabel and Fernando survived to adulthood. In addition, Fernando had two illegitimate children by the time he married Isabel, and he had at least two more afterwards. The political situation they faced from the beginning of their marriage was extremely difficult. In 1468, King Enrique of Castile had named Isabel, his half-sister, the heir to the throne, but a powerful faction that included noblemen and clerics continued to support Enrique's daughter, Juana, as the rightful heir.

Especially telling about Isabel's character is the manner in which she seized control of her future when Enrique died in December of 1474. The very next day, she proclaimed herself Queen of Castile (left). Almost immediately, a war of succession began between her supporters and those of Juana. Portugal entered the war when King Afonso V became betrothed to Juana in 1475. Afonso hoped that he would become king of Castile once Juana won the war. In 1476, Portuguese troops invaded western Spain and fought Isabel's supporters in the Battle of Toro. Even though the outcome was not decisive for either side, Isabel claimed victory. Two years later, she further secured her place as ruler with the birth of her son Juan. Many of her subjects believed that the presence of a male heir legitimized her unusual status as a female ruler.

December 1474:
Isabel proclaims
herself Queen
of Castile.





But the War of Succession was not yet over.

For many years, Portugal had been in control of areas along the western coast of Africa, including Guinea, Madeira, the Azores, and Cape Verde, where they traded for gold and slaves. In 1478, Portugal won a fierce naval battle against Castile in the Gulf of Guinea. Representatives for both sides signed the Treaty of Alcacovas in 1479, thereby ending the conflict. Afonso V of Portugal gave up his claim to the Castilian throne, and Isabel and Fernando pardoned the Castilian

supporters of Juana. They also acknowledged Portuguese rule over its African and Atlantic colonies, with the exception of the Canary Islands. In that same year, 10 years after their marriage, Fernando's father died, and he inherited the crown of Aragon. Isabel and Fernando were now both monarchs, but, in truth, their major accomplishments still lay ahead of them.

Barbara F. Weissberger is an emerita professor in the Department of Spanish and Portuguese Studies at the University of Minnesota, Twin Cities. She has published widely on queenship and ethnicity in medieval Spanish literature.

Determined To Succeed

by Charles Beem

When Isabel of Castile, the daughter of King Juan II and his second wife, Isabel of Portugal, was born in 1451, she was third in line to the Castilian throne. First was her older half-brother, Enrique; second, her younger brother Alfonso. As in England and other kingdoms in Europe at the time, Castile did not prevent women from inheriting the throne. In fact, Castile had a history of ruling queens dating back to Uracca in the 12th century and Berengaria the Great in the 13th century.



As a Youth

As Isabel made her way through her childhood and teenage years, she slowly but surely moved closer to the throne. When her father died in 1454, her elder brother succeeded him as Enrique IV. He proved to be neither a popular nor an effective king. When his daughter Juana was born in 1462, it was widely rumored that her real father was a Spanish nobleman named Beltran de La Cueva. As dissatisfaction with Enrique's rule grew, a number of Castilian noblemen turned to Isabel's brother Alfonso as a viable alternative to Enrique. But Alfonso died in 1468, leaving Isabel as the best option for the opposition to Enrique. In the face of continuing armed conflict with his nobles, Enrique finally acknowledged Isabel as his heir, in place of his daughter. He did try, unsuccessfully, to exert control over her eventual marriage. (See also pages 2–3.)

As a Teenager

Marriage was an inescapable part of Isabel's future, as it was for nearly all of early modern European queens. Evidence of the force of her character is the manner in which she resisted pressure from Enrique to marry King Afonso V of Portugal and Charles, Duke of Berry, the brother of King Louis XI of France. Instead, Isabel chose her cousin Fernando, heir to the Aragonese and Sicilian thrones, of her own free will, and married him in haste in Valladolid in 1469. But before Isabel became queen, she compelled Fernando to agree to the *Capitulaciones*, a form of pre-nuptial agreement according to which Fernando recognized that Isabel would be Castile's ruling queen. Fernando also agreed to obey Castile's laws, and pledged not to take Isabel or their future children out of the kingdom.

As a Wife

While the marriage was successful as royal marriages go, Isabel demonstrated her queenly independence after her brother's death on December 11, 1474. Unlike other western European states such as England and France, Castilian kings were not crowned. Rather, they underwent a form of inauguration, usually an acclamation, that signified their accession to the throne. Because Enrique's daughter Juana also laid claim to the throne, Isabel wasted no time in asserting her right by proclaiming herself Castile's next sovereign in Segovia. She did this even before Fernando could join her and participate in her accession. Fernando was somewhat alarmed; Isabel had had one of her nobles carry aloft before her the sword of justice, an unsheathed sword that symbolized royal power. Previously, this sword had been borne only before Castilian kings.



Just look at the fine details in this medallion relief honoring Ferdinand and Isabel that adorns a door at the University of Salamanca, Spain.



Look! My headband is just like theirs! So, I have something in common with Isabel! She probably wore one, too, as this present-day celebration honors Isabel's coronation as Queen of Castile!

As a Queen

But Isabel knew exactly what she was doing. Early on, she realized that if she were to be a successful queen, Fernando must also be a successful king. Although the couple had been married for five years prior to Isabel's accession, her new status as queen led to a period of adjustment while the issues of who ruled what and how were negotiated between the pair. Fernando agreed to Isabel's sole proprietorship of the Castilian throne. He did, however, serve as her military commander. In time, Isabel relaxed the restrictions of the *Capitulaciones*. Their motto *Tanto monta, monta tanto* ("It's one and the same": Isabel the same as Fernando) symbolizes how they viewed their joint rule.

As a Co-Ruler

According to the religious beliefs followed by both, marriage was seen as the joining together of two people as one. Isabel and Fernando gave this concept a genuine political dimension in the way in which their joint power flowed between them and out into their kingdom. This, in turn, allowed Isabel to enjoy her sovereign rights as queen without damage to Fernando's masculine reputation as king consort. So, while she exercised the rights of kingship within her council chamber, she appeared to her subjects in the more recognizable role of queen, even though she was, for all intents and purposes, Castile's ruling sovereign. At the same time, Fernando appeared in the recognizable male role of king. By playing public roles that outwardly conformed to what was expected of kings and queens, Isabel and Fernando were perhaps the most successful joint rulers in European history.

Charles Beem is professor of history at the University of North Carolina, Pembroke, and the author of numerous books on the British monarchy, including *The Lioness Roared: The Problems of Female Rule in English History*.

THE CALLIOPE CHRONICLES

Bob Barry

CASTILE, SPAIN...1474

WOE IS ME!!
I AM LINDONE!

RODRIGO THE JESTER! WHY
ALL THE UPSET? WHY IS YOUR
PLACE SUCH MESS? IT LOOKS
LIKE MY CUBBY BACK ON
OLYMPUS!

WHAT'S
GOING ON?
MAYBE WE
CAN
HELP?

THE WORKINGS OF A CREATIVE MIND,
MY MUSE OF MIRTH... BUT I HAVE FAILED
TERRIBLY! ISABEL WILL HAVE MY HEAD!

I HAVE LOST THE
CASTILIAN
SWORD OF
JUSTICE,
WHICH ISABEL
NEEDS
PRESENTLY FOR
HER CORINATION!

AND WHAT'S ALL
OVER YOUR HANDS?...?
PEGASUS LOVES IT!

I WAS CUTTING
SOME CHEESE FOR MY
MEAL! THAT TICKLES!

SLURP!
SLURP!

THE SWORD IS LOST
AMIDST THIS TUMULT! I
CALL MY HOME... PLEASE
HELP ME FIND IT!

WE JUST HAVE
TO RETRACE
YOUR STEPS...
TELL EVERYTHING
THAT HAPPENED
THIS MORNING!

FIRST, ISABEL'S OWN MESSENGER
DELIVERED TO ME, THE CASTILIAN
SWORD OF JUSTICE....

SO INSPIRED WAS I BY THIS HONOR
THAT I TOOK TO WRITING MY JOKES
FOR THIS EVENING'S FESTIVITIES!

AND ENTER IT DID, BLOWING MY WRITINGS OF FARCE
AND MERRIMENT ALL ABOUT MY APARTMENT....

I WORKED AT A FEVER PITCH AND SOON SWOONED
FROM THE HEAT OF MY EXERTIONS... I USED THE
SWORD OF JUSTICE TO PROP OPEN THE DOOR
TO ALLOW A BREEZE TO ENTER....

FAMISHED FROM MY
CREATIVE
WORK, I
BEGAN TO
SEARCH FOR
UTENSILS TO
PREPARE A
REPAST IN
MY SMALL
KITCHEN....
AND FINDING
THE FIRST
SHARP THING
AT HAND
BEGAN
CHOPPING!

BUT VERILY, THE WONDERFUL SWORD DID SERVE AS
A SPLENDID PAPER WEIGHT....

THEN THERE WAS A MIGHTY KNOCK AT
THE DOOR WHICH STARTLED ME AND
MADE ME ABANDON MY TASK!

IT WAS THE MESSENGER, RETURNED....

JESTER! MAKE
HASTE! WHERE IS
THE SWORD OF
JUSTICE? YOU
WERE SUPPOSED TO
DELIVER IT HOURS
AGO! WHAT HAVE
YOU BEEN DOING?

NEVERMIND
THAT! JUST
BRING ME THE
SWORD, IF
YOU CAN FIND
IT IN THIS
MESS!

JESTER'S WORK
SURELY....

AND
SO, I AM
LINDONE!

DON'T WORRY,
BUDDY, WE'LL
FIGURE IT OUT.
WE JUST NEED
TO REVIEW YOUR
STEPS, AND THE
SWORD SHOULD
BE WHERE YOU
WERE LAST!

AND THIS TIME,
WE CAN ASK OUR
READERS FOR
HELP... GUYS,
JUST FOLLOW
RODRIGO'S STORY,
AND PUT THE
CLUES
TOGETHER....
AND WRITE DOWN
YOUR ANSWER,
AND SEE THE
ANSWER ON
PAGE 40.

A CLUE.... THE FIRST
THING RODRIGO WAS
DOING WHEN CALLIOPE
POPED IN, WAS THE
LAST THING HE WAS
DOING WHEN THE
MESSENGER ARRIVED.

THE END...

Auto-de-Fe

by Barbara F. Weissberger



Nearly 200 years have passed since the Spanish **Inquisition** established by Isabel and Ferdinand officially ended, and still myths about its organization and practices continue to circulate. The first is that Spain invented the concept. The truth is that various inquisitions had functioned throughout Europe since around 1180. Under the jurisdiction of religious leaders in the Catholic Church, specifically **bishops** or the **pope**, these organizations were charged with protecting the beliefs and practices of the Church from beliefs and practices contrary to established doctrine.

Truth in the Records

An inquisition of this type had operated in the kingdom of Aragon in the 13th century, but nowhere else in Spain until 1478. It was in that year that Queen Isabel and King Fernando received authorization from Pope Sixtus IV to establish one in both their kingdoms. The unique characteristic of the Inquisition in Spain as established by the pope is that it was controlled by the monarchs rather than the Church. This combination of religion and politics greatly enhanced Isabel and Fernando's power.

Who Were the Conversos?

Another major myth about the Spanish Inquisition has been that it targeted

The master Spanish artist Francisco Goya starkly portrays an *auto-de-fe*, with the four men in cone-caps before the inquisitors. (painted between 1812 and 1819)



Jews. In reality, it only had jurisdiction over Christians. Jews had lived on the Iberian Peninsula alongside Christians since at least the third century. This coexistence of Jews and Christians did not always go smoothly. As with Jews living elsewhere in Europe, Jews in Spain often faced discrimination. Laws requiring them to wear distinctive badges or live apart from Christians were issued repeatedly in Spain. There were also unofficial outbreaks of violence against Jews, who became scapegoats for a variety of reasons. Most important, between 1391 and 1418, threatened and actual violence led to a huge number of conversions

from Judaism to Christianity. These converts were known as New Christians or *conversos*. Although statistics for the period are highly unreliable, a reasonable estimate is that by the 1490s there were as many as 250,000 *conversos*. By contrast, there were fewer than 80,000 Jews in Castile by 1474, the year Isabel claimed the throne.

Many of the *conversos* became fully integrated into Christian society, working primarily as tradesmen, merchants, and artisans. *Conversos* could also occupy positions in the Church, in municipal government, and in universities, positions that were closed to Jews. Resentment of the successes of the *conversos* increased throughout the 1400s among all classes of Old Christians and among some Jews as well.

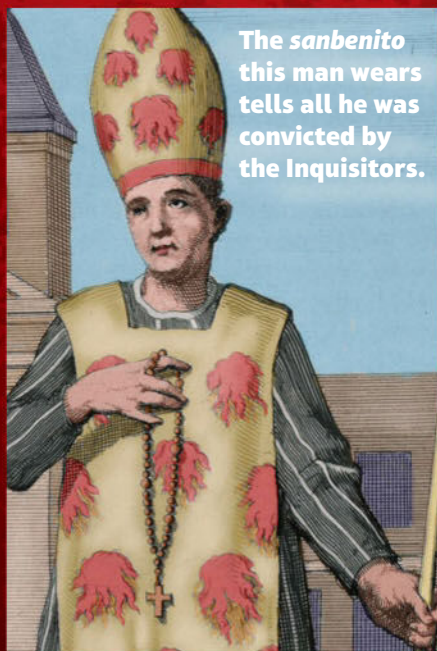
This brings us to another myth about the Inquisition, that it was instituted to stamp out widespread Judaizing—the organized observance of Jewish rituals and customs—among *conversos*. No documentation exists that suggests that all *conversos* were really Jews who secretly held on to Jewish beliefs and practices while maintaining a false public identity as Christians. Rather, there was a wide range of beliefs and practices among *conversos*, varying from those who were devout Christians, to those who combined beliefs and practices of both Judaism and Christianity, to those who believed in no religion at all.

An Adviser's Power

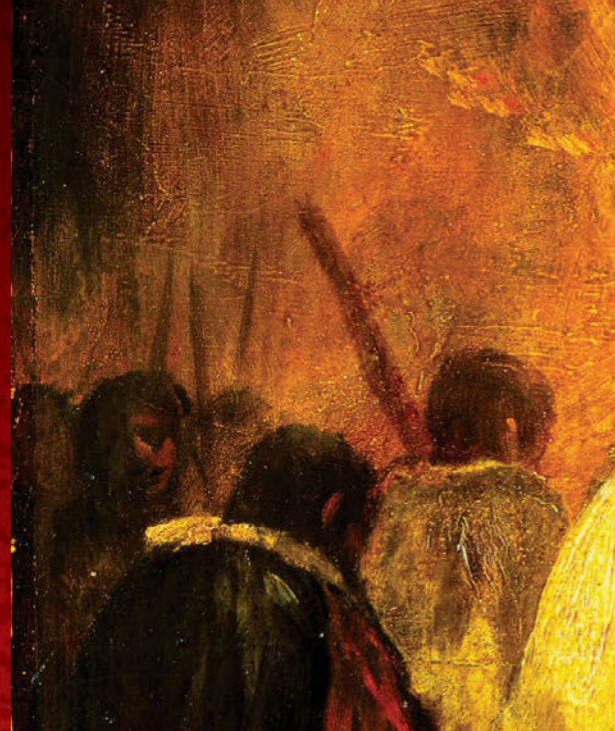
So why did Isabel and Fernando institute an Inquisition? Their

motivation was partly social and partly religious. Isabel's claim to the throne had been contested since she had herself proclaimed Queen of Castile in 1474. A civil war had broken out immediately and lasted until 1479, the year Fernando inherited the kingdom of Aragon. Tensions between Old Christians and *conversos* and between *conversos* and Jews were seen as a threat to the goal of social unity that she and Fernando wanted. The Dominican friar Tomss de Torquemada pushed for an Inquisition as a way to reach that goal by enforcing religious orthodoxy. Torquemada was a close adviser and confessor to Isabel. It is generally believed that he influenced her and Fernando to institute the Inquisition. In 1483, she named him Inquisitor General, a position of extraordinary power.

The numbers of *conversos* and other minorities the Inquisition punished, tortured, or executed have



The sanbenito this man wears tells all he was convicted by the Inquisitors.



often been exaggerated. There is very little documentation, especially for the first decades it functioned, but the best estimates are that well under two percent of the accused were sentenced to death. This was much lower than the number of executions ordered by non-religious courts in Spain.

A Toxic Atmosphere

Another infamous practice associated with the Spanish Inquisition was torture. Once again, the use and particular methods of torture were not invented by the Spanish Inquisition. They were widely used in criminal proceedings throughout Europe at the time. The Inquisition used torture only as part of the interrogation process, when it wanted to elicit information or a confession. It was carefully regulated and documented. Inquisitors were well aware that the confessions they obtained this way were suspect; the accused had to reaffirm them the day after in order for them to count.

Dispelling myths about the

Here's another painting by Goya, this one titled *Night of the Inquisition*. What do you think is going on here?



Inquisition is by no means to say that it was a harmless institution. In addition to the actual physical punishments suffered by the accused, the Inquisition created an atmosphere of surveillance, denunciation, fear, and shame. This atmosphere damaged social and familial relationships between all the groups involved and destroyed any chance for social unity.

How It Worked

Upon arriving in a town, the Inquisitors—that is, members or officers of the Inquisition—issued an edict initiating a period of grace of about a month. During this time, people could confess to—or accuse others of—Judaizing practices and be reconciled to the Church without serious penalties. This practice promoted gossip and malicious accusations by *conversos'* neighbors, friends, and even family members. Adding to the harm caused by denunciation was the secrecy of procedures: Names of witnesses were concealed so the accused could not

refute their testimony.

The outcomes of a trial ranged from acquittal, to penance and reconciliation with the Church, to execution. Those found guilty had to participate in the shaming *Auto-de-Fe* (Spanish for “Act of Faith”). This was a highly orchestrated spectacle that included prayer, the Catholic service known as the mass, and often a public procession and reading of the sentences of those found guilty. The term *Auto-de-Fe* has become synonymous with burning at the stake, but only condemned or relapsed heretics were executed. Much more common were flogging, banishment, an order to wear a penitential garment called the *sanbenito* in public (see image opposite), fines, or rowing in the **galleys**.

The Inquisition was most active from 1480 to 1530, but it continued to inspire fear and inflict harm on various minorities into the 1700s. It was not officially terminated until 1834, ending a long and dark history whose shadow still looms large.

Galleys refer to seagoing vessels propelled mainly by oars, used in ancient and medieval times, sometimes with the aid of sails.

Granada FALLS





711 C.E.: A Muslim army claims the southern tip of what is now Spain.

The city of Granada is home to Spain's most visited historical landmark—the magnificent Alhambra palace and fortress (see pages 28–32). After touring the Alhambra, many visitors also take time to explore Granada's other historic monuments, including the Royal Chapel, a richly decorated structure that Queen Isabel and King Fernando ordered built as their burial site. Their tombs can still be seen there today.

Why did the monarchs choose Granada to be their final resting place? The answer to this question lies in the enormous symbolic significance of the city as the location of what Isabel considered her most historically important achievement as queen: the 1492 conquest of Granada and the completion of the centuries-long Christian struggle to wrest Spain from Muslim control.

The Kingdoms

Islam had first arrived in Spain nearly eight centuries earlier in the year 711 C.E.. That was the year an invading Muslim army crossed the Strait of Gibraltar from North Africa (left) and quickly conquered nearly all of what is now Spain and Portugal. Over the next few centuries, small Christian kingdoms such as Castile, Leon, Navarre, and Aragon emerged in the north. While these kingdoms were frequently at war with one another, they also at times engaged in campaigns against their Muslim neighbors to the south. In time, the frontier between Christian Spain and Muslim Spain gradually moved southward. The key turning points occurred with the Christian conquest of the central city of Toledo in 1085 and the southern cities of Cordoba and Seville in 1236 and 1248, respectively. After 1248, only the kingdom of Granada in Spain's southeastern corner remained under Muslim control.

Muslim refers to a person who practices the religion of Islam. Islam originated in the Arabian Peninsula, in the area that is today Saudi Arabia, in the early 600s C.E. Its founder was the prophet Muhammad, who, according to Muslim belief, spoke messages revealed to him by God. The collected words of God revealed through Muhammad constitute the *Qur'an*, which Muslims consider the most sacred book of God's teachings. After Muhammad's death in 632 C.E., Islam spread quickly outside of Arabia, first throughout the Middle East and then across North Africa. In the year 711 C.E.—less than a century after Muhammad's death—Muslim armies conquered nearly all of what we today call Spain.

Moor is a word that is not used frequently today, and some people even consider it offensive. In the past, "Moor" was used by Europeans to signify the Muslim peoples of northwestern Africa and Spain in the Middle Ages. The so-called "Moors" were a highly mixed population in cultural terms. They had roots in both the pre-Islamic Berber language and traditions of northwestern Africa as well as the Arabic language and culture of the conquerors from the east. "Moorish Spain" figuratively came to an end with Isabel and Fernando's conquest of Granada in 1492.

Arab refers to the peoples of the Middle East and North Africa for whom Arabic is the primary language. Note that "Arab" is an ethnic, cultural, and linguistic term, not a religious one. While Islam is the major religion among Arabs today, not all Arabs are Muslim. The Arab world also includes many Arab Christians and practitioners of other religions as well. It is also important to emphasize that only a small fraction of the world's Muslims today are Arab. From its origins among the Arabs, Islam has spread across the globe to become a world religion. Of the five countries in the world today with the largest Muslim populations (Indonesia, India, Pakistan, Bangladesh, and Nigeria), none are part of the Arab world.



This illustration, dating to the mid-1200s, shows a Christian (left) and a Muslim playing a game of chess.

Spanish history through this long and transformative era was characterized by much more than conflict. "Al-Andalus," as the Muslims of Spain called their land, had become one of the wealthiest and most culturally advanced places in the world. Muslim Toledo and Cordoba, in particular, were well known in Europe, North Africa, and the Middle East as leading centers of science, philosophy, and the arts.

Convivencia

Despite the off-and-on wars, cities and towns throughout Spain continued to be home to significant numbers of protected religious minorities—Jews and Christians in the Muslim-controlled south, and Muslims and Jews in the Christian-controlled north. So it was that, for nearly eight centuries, Muslims, Jews, and Christians lived and practiced their faiths alongside one another on a daily basis in neighborhoods throughout Spain. It would be far from the truth to claim that there were never religious conflicts among the practitioners of these three faiths. Still, many Spaniards today take great pride in the fact that their homeland was, for hundreds of years, characterized by what they call

DID YOU KNOW?

Al-Andalus was the generic name used to identify part of the westernmost frontier of the Islamic world during the middle ages. It refers specifically to the Iberian Peninsula, or present-day Spain and Portugal. The Islamic political presence on Iberian soil lasted more than 700 years and had an enormous cultural influence in the lives of nearly all inhabitants, whether Muslims, Christians, or Jews.

—Maria Judith Feliciano

the *convivencia* (“living together”) of Muslims, Jews, and Christians.

When Isabel became Queen of Castile in 1474, the uneasy peace between the Christian Spanish kingdoms and Muslim Granada had endured for more than 200 years. She and Fernando inherited their realms at a time of recovery from longstanding economic instability and political unrest. A number of powerful noblemen had risen in rebellion against the authority of Enrique IV, Isabel’s older brother and predecessor as King of Castile. The renewal of war against Granada in 1482 came as the result of border skirmishes and raiding rather than any order issued by the queen herself. Once begun, however, the Granada War provided an opportunity for Isabel and Fernando to unite the Castilian noble factions in a common cause.

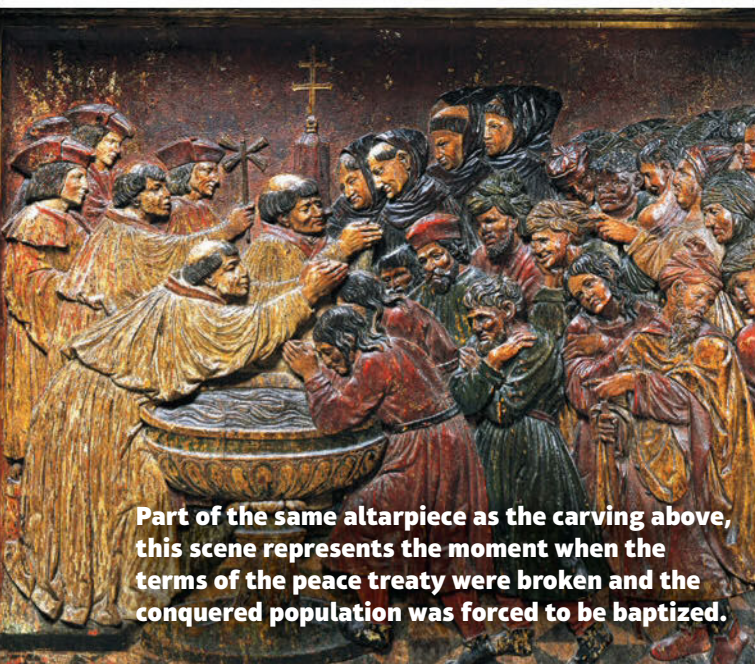


This contemporary wood relief was carved to honor the conquest of Granada. It shows Isabel and Fernando leading their troops.

Reyes Catolicos

Through nearly 10 years of conflict, Isabel’s forces also benefitted from feuds within Muslim Granada’s ruling family that split the loyalties of the city’s armies. Finally, on January 2, 1492, Isabel and Fernando entered the city of Granada in triumph. The final outpost of Muslim political presence in Spain had fallen to Christian control. In recognition of the queen’s well-known piety, as well as the royal couple’s significant achievement in completing the Christian conquest of Spain, Pope Innocent VIII bestowed upon them the title *Reyes Catolicos* (“Catholic Monarchs”).

The religious fervor that accompanied the fall of Granada, however, also had a darker side. On March 31, 1492, just three months after the city fell and while Isabel and Fernando were still living in Granada’s Alhambra palace, the two signed a royal decree ordering all Jews in their kingdoms to convert to Christianity or leave their realms. Ten years later, in 1502, Queen Isabel signed a similar decree ordering all Muslims in Castile to convert to Christianity or emigrate. Thus, the end of the Christian conquest coincided with the end of the tradition of religious *convivencia*.



Part of the same altarpiece as the carving above, this scene represents the moment when the terms of the peace treaty were broken and the conquered population was forced to be baptized.

David Coleman is a professor of history and the director of the Honors Program at Eastern Kentucky University. He has written a book and several articles about the history of Granada.

To the East!

by Cristina Giardiola-Griffiths

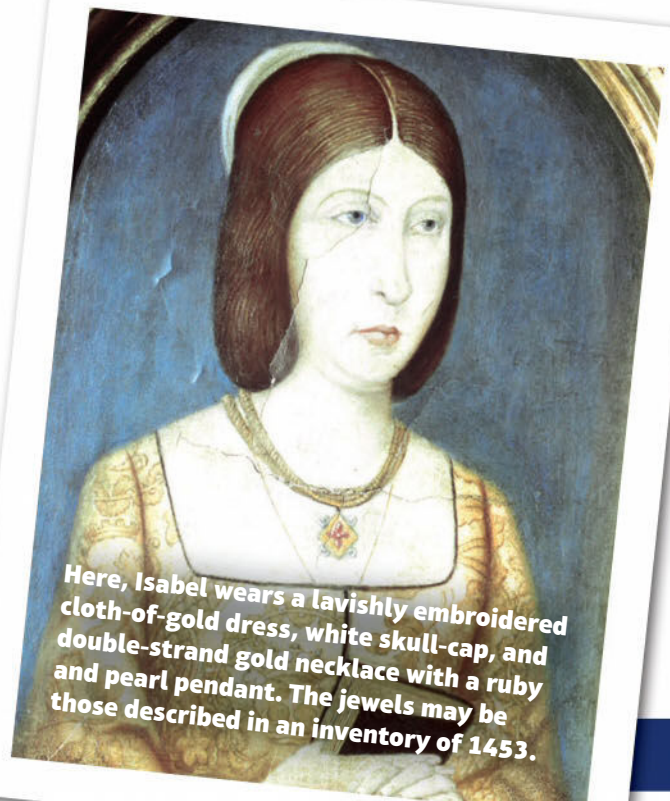
When Christopher Columbus set sail... to the East in 1492, he had a signed, legal document guaranteeing him rights as royal admiral, viceroy, and governor over all that he could see. For 30 years after his death, his descendants sued the Castilian court for rights to the lands that they claimed he had discovered—rights that would never be acknowledged!

MOST HISTORIES THAT TELL YOU...

the story about Isabel's role in the "discovery" of America start with the high drama of a disheartened Christopher Columbus, who, rejected by other kings, had headed to the Spanish court. The Spanish monarchs say no at first, but eventually Isabel changes her mind and even pawns her jewels to finance the expedition. She probably did pawn some jewels, but let's not get too carried away with these details! Jewelry was often used as collateral to secure a loan. Isabel's famous ruby necklace—a wedding gift from her husband—was part of the jewels used for a loan of 60,000 **florins**. Her crown of eagles, used to get a 35,000 florin loan, could have financed Columbus's voyage more than eight times over.

BEFORE WE GET TOO FAR AHEAD...

of the story, let's travel back to the early 1400s. At that time, the southern part of the Iberian Peninsula was still under Muslim rule. This peninsula, which is today home to Spain and Portugal, was conquered originally by North African Muslims in the early 700s (see page 15). On this peninsula, art and architecture, medicine and poetry flourished for several centuries. This land gradually was brought under the control of



Here, Isabel wears a lavishly embroidered cloth-of-gold dress, white skull-cap, and double-strand gold necklace with a ruby and pearl pendant. The jewels may be those described in an inventory of 1453.



“We did it! We found a shorter route west to Asia!”—So think Columbus and his crew, as they disembark on Hispaniola in 1492.

various Christian kingdoms in what, for centuries, has been called the *Reconquista* (“Reconquest”). As this conquest of the peninsula was completed, the Christian kingdoms began to turn to other lands. These outward excursions would jumpstart a process that for Castile would create a global empire. In the late 14th century, one of these Christian kingdoms, Portugal, began to explore the African coastline in an effort to find trade routes that avoided the monopolies in the Mediterranean. Castile was not far behind in exploring the Atlantic. In 1402, this largest and wealthiest of the Iberian kingdoms began the conquest of the Canary Islands. These islands are still part of Spain today.

THE DISPUTES BETWEEN...

Castile and Portugal over the Canary Islands can be seen as the preface to the political and marital disputes that occurred almost a century later. When Isabel’s father died, Isabel was fifth in line for the throne, but still she challenged her niece Juana’s right to rule Castile. She claimed that her half-brother did not have any legitimate children, which, Isabel argued, meant that Juana had not inherited Henry’s royal blood and could not be proclaimed ruler of Castile.

IT WAS THE DEATH...

of Isabel’s half-brother, Henry IV, that started the War of Succession. There were no male heirs, but

Florins refer to any of various European gold coins patterned after the Florentine florin, a gold coin first struck at Florence, Italy, in 1252.



June 7, 1494: The Spanish ambassador (white-bearded and dressed in a reddish garment) and his Portuguese counterpart (in a gold vest) sign the treaty, dividing the world between their two nations.

each Castilian princess was backed by another Christian, Iberian kingdom. Isabel had married her second cousin, Fernando of Aragon, while Juana had married her uncle, Alfonso V of Portugal. By 1478, the War of Succession was winding down, and Isabel was winning. Isabel took advantage of this to finish the conquest of the Canary Islands. She even tried to take over part of Portugal's expansion into the Gulf of Guinea. The expedition to Guinea, however, turned into a complete disaster for Isabel. The Portuguese surprised the Castilians with a fleet of 11 ships. The commanders of the Portuguese fleet, Jorge Correia and Mem Palha, took control of Castile's 35 merchant and naval ships and the cargo full of gold without losing a single sailor!

THE PORTUGUESE VICTORY...

in Guinea led to the Treaty of Alcáçovas. Signed in 1479, it was the first European treaty to divide the unknown world into "spheres of influence." Portugal's easy victory over Castile in the Gulf of Guinea also gave the Portuguese the right to "explore" most of the Atlantic and eastward from the African coast. At the same time, it promised

Castile continued sovereignty over all lands north of the Canaries. This treaty also legitimized the Catholic kings as the rightful rulers over most of the Iberian Peninsula. The kingdom of Granada remained under Muslim control, but only until January 2, 1492. While it took more than 10 years to conquer Granada, a mere 10 months after what the Catholic kings saw as the *Reconquista* ended, Columbus set foot on lands hitherto unknown to Europe. Now, the royals turned to the *Conquista* ("Conquest") of new lands.

FERNANDO AND ISABEL HAD HOPED...

that Columbus's trade route would be faster and more lucrative than the route then being used by the Portuguese. By traveling westward across the Atlantic, the royal couple hoped to find a new trade route that led to the East, one that avoided both the Mediterranean and Portuguese-controlled lands in Africa and the newly discovered Indian Ocean. But, Fernando and Isabel had not considered what might happen if Columbus shared his discovery with the Portuguese. When Columbus returned to Spain from his first voyage, storms brought him first to Lisbon, Portugal. There, he



In this 1590 illustration, Columbus dines with Spanish nobles. A few are said to have remarked that, even if Columbus had not discovered the Indies, others would have. Columbus then asked the nobles to make an egg stand on one end. When none could do so, he took the egg, tapped it slightly to make a crack, and then stood it on one end, saying that, once something had been accomplished, anyone else would know how to do it.

spoke with John II of Portugal. Upon hearing of Columbus's discovery, the Portuguese king threatened Isabel and Fernando. John II vowed to send a fleet and claim these newly discovered lands for his own. The Treaty of Tordesillas in 1494 resolved this conflict. At the same time, it unknowingly provided a "New World" divide that favored Isabel's Castile.

PORTUGAL WAS FOCUSED...

on preserving its right to the African coastline, so it demanded that the longitudinal line established by the Treaty of Alcacovas not be changed. The Treaty of Tordesillas established a line of demarcation halfway between the Cape Verde Islands, which were already Portuguese, and the islands entered by Christopher Columbus on his first voyage and claimed for Castile and Leon. These islands, named in the treaty as Cipangu and Antilia, are known today as Cuba and Hispaniola (present-day Haiti and Dominican Republic).

WHAT WAS UNKNOWN...

to all involved at the time was that two enormous continents lay mostly to the left of the demarcation line. According to the wording of the treaty, these would come under Spanish control. Spain and Portugal did keep, for the most part, to the terms of this treaty, despite the unknowns about world geography. Not so, however, for all the other European powers—that is, those that had been left out of the Tordesillas pact. They ignored the treaty's provisions.

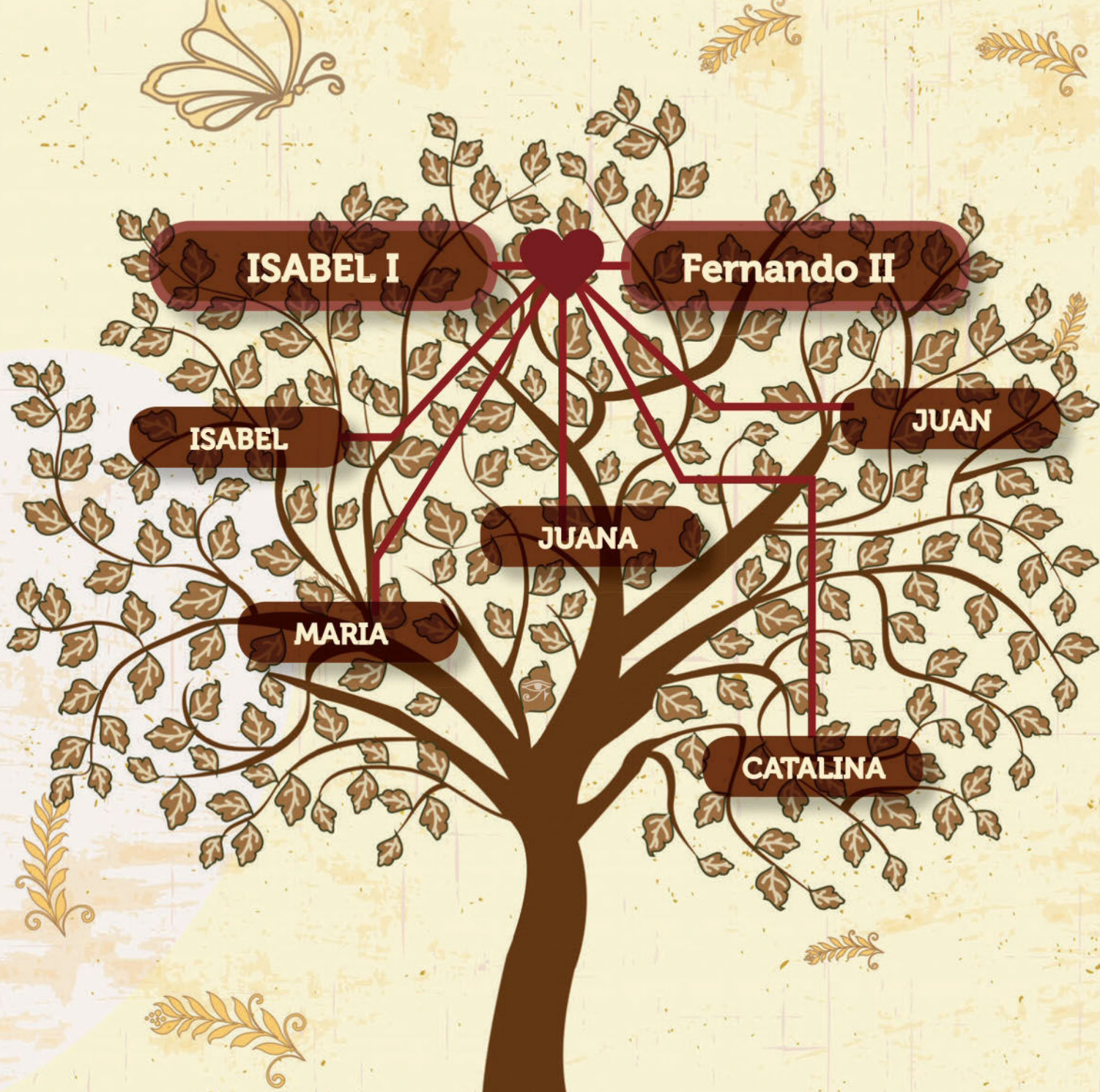
WHILE CASTILE AND PORTUGAL WERE...

hashing out the terms of this second treaty, Columbus set sail on his second voyage. The year was 1493, and this time he left not to discover new worlds, but to colonize them. He took at least 17 ships and 1,200 men. When he returned to Hispaniola, Columbus found the fort of La Navidad, which had been built during the first trip, destroyed. In 1498, Columbus set sail on his third voyage. He returned to Hispaniola and tried to address the concerns of those still on the island. The settlers in Hispaniola accused Columbus of mismanagement and cruelty. As a result, Columbus returned from his third voyage in chains. Most of those at court were horrified by this excessive use of force, but not horrified enough to support Columbus's claim to the titles and profits that Isabel and Fernando had granted to him in 1492!

BY 1502, COLUMBUS WAS CLEARED...

of most of the charges laid against him and managed to persuade Isabel and Fernando to pay for one last voyage. Columbus explored what would later become part of the Panama Canal, abandoning two of his four ships just miles from the Pacific Ocean because of an attack by hostile natives! Columbus returned to Spain after this disastrous fourth voyage. Nineteen days later, Isabel died.

Cristina Giardiola-Griffiths is an associate professor in Medieval Literature at the University of Delaware.



Love + Family

Isabel of Castile was a ruling queen, wife, and mother. It was a difficult balancing act, considering the many objectives she pursued as queen. For the purpose of providing an heir, most ruling queens married, with the notable exception of Elizabeth I of England. When Isabel married her cousin Fernando, heir to the throne of Aragon, the decision was primarily dynastic and eventually resulted in the unification of Castile and Aragon as the kingdom of Spain.

Historically, kings and queens rarely married for love. In medieval times, few even knew each other personally before they married. In the case of Isabel and Fernando, it appears that love did indeed develop between them or, at the very least, they were successful in convincing their contemporaries that they loved each other. Knowing that being a good queen required being a good wife, Isabel remained devoted to Fernando her entire life, sewing his shirts for him by hand and doing her best to keep beautiful women away from him in the royal court.

Being a good queen was not enough, however. Isabel also knew that she had to provide a successor and be a good mother. Isabel took these responsibilities very seriously. She bore her first child, Isabel, in 1470. When Isabel was six, she was trapped in Segovia in a castle, while her parents were fighting the king of Portugal for the crown of Castile. After that, Isabel was constantly with her mother, who personally supervised her education.

In 1475, Queen Isabel had a miscarriage, but bore the jewel of her crown, Juan (also spelled John), in 1478. Soon after, he was made Prince of Asturias, the title given to the heir to the throne.

Three daughters followed: Juana in 1479, Maria in 1482, and Catalina (also spelled Catherine) in 1485. Isabel raised her daughters to be queens, providing them all with a **Renaissance humanist education**, including the study of the classics and languages. She also taught them the domestic arts and placed a high value on their integrity and piety. When she brought her daughters to visit their grandmother, Isabel waited upon the **dowager** queen herself—a demonstration of her filial love and devotion to her mother.

Isabel negotiated advantageous marriages for all of her children. Her eldest daughter, Isabel, married two successive kings of Portugal. Juan wed Margaret of Austria, the daughter of the Hapsburg Holy Roman Emperor Maximilian I, and Juana wed Margaret's brother Philip. Maria was married to her elder sister Isabel's second husband Manuel I of Portugal, while Catalina's husband was the English Arthur Tudor, Prince of Wales and heir to the throne of England.

In contrast to the success of her own marriage and the raising of her family, none of her children's marriages came close to matching hers. Eldest daughter Isabel died in childbirth, while Juan died soon after his marriage to Margaret in 1497. Juana became known as *La Loca* ("The Crazy One") for her alleged insanity following her husband's early death. After Arthur Tudor died, Catalina married Arthur's brother Henry VIII in 1509. Just days later, Henry and Catalina were crowned king and queen of England. Known to history as "Catherine of Aragon," she was Henry VIII's first wife. Their daughter, Isabel's granddaughter, was crowned Mary I of England in 1553.

The Renaissance was a period, beginning in the 14th century and continuing into the 17th century, that was characterized by a revival of art, literature, and learning in Europe. **Humanist education** is the study of the cultures of ancient Greece and Rome, with an emphasis on secular, individualistic, and critical thought.

Dowager is the term used for a woman, especially the widow of a king, who holds some title or property from her deceased husband.



Her Will

by Theresa Earenfight

Queen Isabel felt wretched. She was feverish and weak after months of illness. She was also sad, because she knew she would die soon. Yet she still had important work to do, and Isabel never shirked her duties. With her secretary taking notes, she began to dictate her will (above), including lengthy and detailed instructions for what would happen to her realm when she died.

The Details

First, she made sure that all her subjects, especially the poor and the weakest, were taken care of. She gave **alms** to care for their bodies and money to the church to care for their souls. She made sure that all her debts were paid in full and then, with what was left, generously gave money to charities to tend to sick, crippled, and old people. She ordered that an unpopular sales tax be removed. Worried that the Spanish



conquistadors were mistreating the native people of the Americas, she ordered that they be treated justly and well. All these actions relieved her conscience, and Isabel prayed that God would forgive her if she missed anything.

Still, there was one matter that worried her greatly. Who should rule Castile after she died? This was not an easy question to answer. The law of Castile clearly stated that Fernando could not succeed her, but that their eldest child should. She

was deeply sad that their son, Juan, had died so young. He would have been perfect. Their second child, Juana, was her legal heir, but she was far from the ideal choice.

A Good Solution

Isabel loved Juana, but she knew the risks her daughter posed. She was charming and pretty, but not interested in ruling. She was married to an untrustworthy, lazy, egotistical man, Philip the Handsome, the Archduke of Burgundy. He was trouble enough, but to make matters worse, Juana was not emotionally stable and suffered from mental breakdowns. Isabel worried that Philip would shove Juana aside, govern Spain poorly, and squander all the hard work she and Fernando had done to make it a strong and safe country. She fretted for weeks about what to do, until finally she thought of a possible solution.

Juana would succeed her mother as the ruling queen, but Isabel would use a legal, honorable way to make sure that Philip's power was curbed. Isabel knew this was a compromise, but she thought it was a good one. Philip would not be a king in his own right, but a king consort, with mostly ceremonial powers. She knew she could trust Fernando, so she ordered that he govern for Juana when she was absent or could not govern. Isabel also knew that some powerful Castilian nobles would grumble about this arrangement. However, it was legal, and most important of all, it would guarantee the safety and prosperity of the realm. Isabel had full faith in Fernando, which eased her mind. He was tough, smart, and experienced. She loved him very much and showed her affection for him by giving all her jewels to him as a reminder of her devotion.

Isabel finished her will on November 23, 1504. When she died three days later, she felt at peace.

Artist Tom Lopes has incorporated several of the words/expressions highlighted in this section into his illustration. We have labeled one. Can you find others? See page 40 for the answers.

WORD ORIGINS

Conquest Not much change here—"conquest" traces its roots through the Old French word *conqueste* ("conquest, acquisition") to the ancient Latin verb *conquirere*, itself a combination of the Latin prefix *com* ("with, together") and *quaerere* ("to seek, to gain").

Victor Here's another noun that has changed very little from its Latin root, and, like "conquest," it is a noun that derives from the Latin verb form *victus* ("having been victorious"). But there is a difference between Latin and English here: Latin has a word for a female victor—*victrix*; English does not, rather it uses "victor" for both males and females.

WHAT'S IN A NAME?

Did you know that name "Isabel" is a variation of the name "Elizabeth"? In



medieval times, many European royal women were given the name—in one form or another. Among the ways of spelling it were: Isabella, Isabela, Isabel, Isabell, Isabelle, Isebella, Isbel, and Izabelle.

WORD STORIES

Aficionado Here's a word that you might see when you read a review of a sports event. By definition, it means "a fan" or "a person who enthusiastically likes, knows about, and appreciates something, especially a sport." *Aficionado* is actually a Spanish word that means "amateur." So, you can see why English adopted it as it did.

Bodega By definition, this term refers to a storehouse where wine can age, as well as to a small grocery store in an urban area. If we do a bit of digging, we find that "bodega" is a Spanish word that translates as "cellar." Can



PE SATRED

Use the letters above to create a word you would like to add to the dictionary of the English language. Email your word and its definition to dig@cricketmedia.com or mail it to: My Word, DIG Magazine, 70 East Lake Street Suite 800, Chicago, IL 60601. We will print some of the most creative and interesting in an upcoming issue of DIG Into History.

BE INVENTIVE

you see the connection? If you think about a storehouse for wine, a cellar is a great place for it to age. In time, “bodega” acquired its second meaning. Check out the little shops in your town! There is probably at least one with the name “Bodega.”

THE “ROMANCE” FAMILY

As you have read in this issue, Isabel I was queen of Castile from 1474–1504 and of Aragon from 1479–1504. The Spanish word

for “queen” is *reina*. With a bit of digging, we found that *reina* traces its roots to the Latin noun *regina*, which, in turn, traces its roots to the Latin noun *regis* (“of the king”). Let’s take a look at Portuguese. Its word for “queen” is *rainha*. In French, it is *reine*; in Italian and in Romanian, it is *regina*. What do these languages have in common? They are the five most widely spoken of the language family known as the Romance languages, all of which trace their roots to Latin, the language spoken by the ancient Romans.

NAME THAT STATE

Below are the names of states in the United States that are actually Spanish in origin:

STATE	SPANISH ROOT	HISTORY
Colorado	<i>colorado</i> (“reddish”)	the name used by early Spanish explorers for the waterway whose red sandstone soil colored the water; in 1881, Congress used the name for the surrounding territory
Florida	<i>florida</i> (“flowery”)	Spanish explorer Ponce de Leon named the land where he landed on the religious holyday of Easter in 1513 <i>Pascua Florida</i> (“Flowery Easter”)
Nevada	<i>nevada</i> (“snowy”)	Spanish missionary Pedro Font named the mountain range in his 1776 map of the area <i>Sierra Nevada</i> (“snowy mountains”)

Your turn—check out the names of other states and their origins!

NAME THAT CITY

Below are the names of cities in the United States that are actually Spanish in origin:

CITY	SPANISH ROOT	HISTORY
Amarillo	<i>amarillo</i> (“yellow”)	origin unclear, but may be because the banks of a stream near this city are a yellowish color; today, the city is often called “the yellow rose of Texas”
Fresno	<i>fresno</i> (“ash tree”)	Spanish explorers gave the area the name because of the many ash trees they found in the area
La Junta	<i>la junta</i> (“the junction”)	this site in Colorado lies at the junction of the two often-traveled routes: the Santa Fe Trail and the road to Pueblo

The Alhambra

by Maria Judith Feliciano

The Alhambra of Granada is one of the very few Islamic palaces to have survived almost intact since medieval times. Founded as a small fortress in the year 897, it was expanded to its present beauty in the 14th century by the Nasrid rulers of the Kingdom of Granada. After the conquest of Granada by Isabel and Fernando in 1492 (see pages 14–17), the Spanish monarchy championed its preservation for two centuries. A period of abandonment followed. In the 19th

century, it was rediscovered after artists and travelers from across the world began to visit it. The most famous, an American writer named Washington Irving, even took residence within its crumbling walls. He wrote, “Such is the Alhambra...an elegant memento [reminder] of a brave, intelligent, and graceful people who conquered, ruled, and passed away.” In recent times, the Alhambra has been restored, excavated, and studied in detail. Today, it is the most visited historical site in Spain.



A Palace City

The earliest surviving descriptions of the Alhambra call it a fortress (*hisn* or *ma'qid* in Arabic) and a castle or palace (*qa'lat al-hamra'*—Arabic for “Red Castle” after the red color of its brick). Built atop Sabika Hill, one of the highest points in Granada, its first purpose was military. This function did not change until 1238, when it became the royal residence of the first Nasrid king, Muhammad Ibn Nasr. Curiously, the king’s nickname was Ibn Al-AhmAr, or “Son of the Red-Haired One.” Thus, the color of the “Red Fortress” of the Alhambra came to share a name with the new king.

The most important changes to the Alhambra came in the 14th century during the reigns of the Nasrid kings Muhammad III, Yusuf I, and Muhammad V. These included gardens, palaces, new military installations, a mosque, a school, look-out points, and many new fortified areas. These are the structures that survive today.

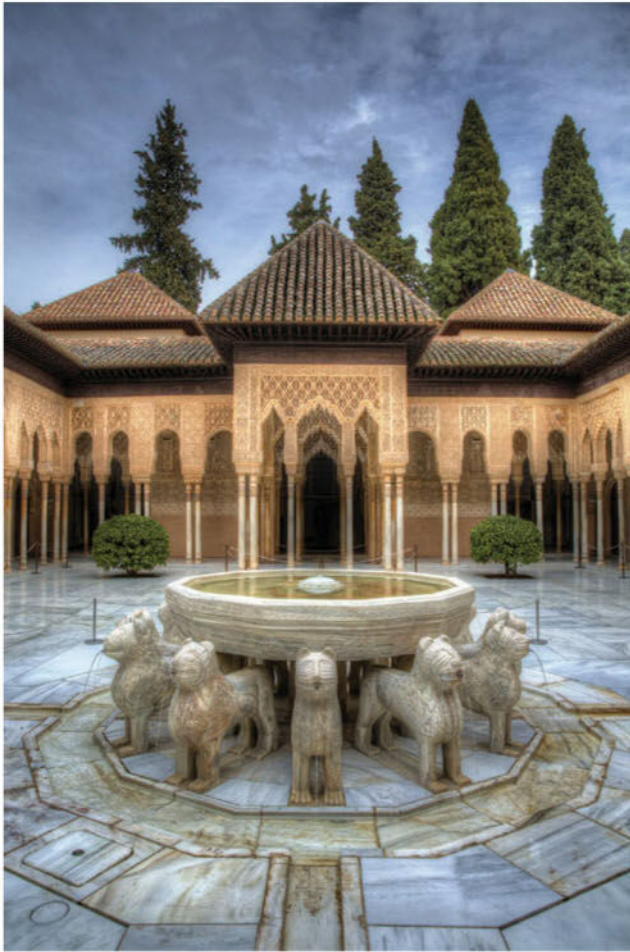
Thus, the Alhambra was much more a palace city than a palace. In addition to the ever-expanding military and royal structures, the Alhambra had its own court of law, government halls, cemetery, military barracks, stables, workshops, and school for the royal children, in addition to kitchens, bathrooms, bakeries, and everything else needed to run a government, an army, and a royal household. Hundreds, if not thousands, of people worked on site daily.

Perfection!

From Sabika Hill, the Alhambra has an impressive view of the city of Granada and the agricultural valley that surrounds it. To meet the needs of its residents, water was delivered through a system of canals, ditches, and aqueducts. The *Acequia Real*, or Royal Canal, is an amazing feat of 13th-century engineering that runs 3.7 miles long and almost 1,969 feet high. Before the waters entered the residential areas of the Alhambra,



**The Alhambra—
seen in this
panoramic view as a
fortress-palace set
atop a high hill**



HI, EVERYONE!
WHAT BEAUTY IN THE
CONSTRUCTION AND
DESIGN OF THESE
FOUNTAINS AND GARDENS
AT THE ALHAMBRA! LET'S
TAKE A STROLL!





they irrigated the famed, extensive gardens and supplied fountains and pools throughout the complex. This effort to create a small-scale replica of the kingdom at large within the walls of the palace city had deep roots in Islamic palace architecture in the Iberian Peninsula.

The idea of the perfect palace maintained the connection between the power of the ruler and his control of the land. The Kingdom of Granada was a wealthy agricultural and commercial center. It produced olives, olive oil, fruit, wine, grains, and silk. It traded with the rest of Spain, North Africa, Italy, and other areas throughout the Mediterranean. The ruler's ability to view the expanse of his land from the windows of the Alhambra connected him directly to his land, the source of his wealth and power. The fact that his

subjects, living and working below, could look up at the Alhambra, acknowledge his presence and power, but not be able to see him, elevated him to a holy dimension. People saw their ruler as he saw himself, the intermediary between God and man who took care of the well-being of the kingdom. The relationship between the city, where the ruler lived and rules were made, and the country, where food was produced, was much closer than what we experience today. This explains why the Alhambra's gardens were miniature agricultural fields, with a huge assortment of fruit trees, vines, herbs, and flowers. Completing the picture of a perfect country landscape that surrounded and protected the sultan were the sounds of birds and water flowing everywhere.

'Reading' the Walls

The walls of the Alhambra were extensively decorated, from floor to ceiling, with some 10,000 Arabic inscriptions. Some are verses from acclaimed Islamic poets. Others are verses from the Quran. Still others provide information about construction dates. Some verses connect the power of the ruler over his kingdom to that of God on earth. Verses from the Qur'an read, "Blessed be He who holds the (reigns of) Kingship in his hand, who has power over everything." Other inscriptions imply his administrative duties and his ability to watch over everything—"He is an observer of all things," for example. A verse from the poet Ibn Jayyab reads, "Over this perfect palace of singular beauty shines the greatness of its **sultan**."

A unique characteristic of these writings is that the verses on the walls often allow the



Alhambra to “speak” in the first person, making the building both the poet and the subject of the poems. Lines from the poet Ibn Zamrak read, “All of art had offered me its beauty, giving me perfection and splendor. He who sees me, imagines me at all hours.” Here, the beauty of the palace and the perfect view of the productive land below combine to recall the power of the ruler to build such a splendid and unforgettable place.

It is no surprise that one of the most common verses found on the walls of the Alhambra (see above) is the Nasrid motto “There is no victor but God.” From the beginning, the Nasrid rulers understood that they existed in relation, as well as in opposition, to the powerful Christian kingdoms of Castile and Aragon. The relationship was complicated. They were commercial and cultural partners who engaged in open exchanges. But they were also military opponents. The Christian kingdoms sought to conquer Granada, the last Islamic kingdom on Iberian soil. After nearly 250 years of battles, skirmishes, and treatises, Isabel and Fernando completed the Christian Conquest and entered triumphantly through the walls of the city of Granada on January 2, 1492.

Casa Real

Isabel saw the Alhambra as the most important monument of her historic military achievement. She declared it a *Casa Real* (“Royal House”), provided for its continued maintenance, and even renovated rooms for her residence. Isabel also ordered a convent and a church built on the grounds. She appointed one of her most trusted politicians, Inigo Lopez de Mendoza, Count of Tendilla, to oversee the maintenance of the Alhambra. His descendants inherited that responsibility for generations.

In 1526, Isabel’s grandson, King Charles V, spent his honeymoon in the Alhambra. For six months after his wedding to Isabel of Portugal, the palace city above Granada became the capital of the Iberian world, which included the Americas. Shortly after his departure from Granada, plans were under way to build a new palace within the Alhambra for the king. The architect Pedro Machuca, who had been educated in Italy, designed a grand Renaissance structure. Construction began in 1533 between the fortification wall and the 14th-century Nasrid palaces.

Maria Judith Feliciano is a specialist in the art and architecture of Islamic Spain.

Andalusian Queens

by Tom Verde | illustrated by Lisa Fields

Isabel I was probably one of medieval Spain's most famous queens, but she certainly was not the only powerful and dynamic woman to rule there.

Aisha al-Hurra

Aisha al-Hurra was both a queen and a queen mother. Her son Abu 'Abdallah Muhammad XII reigned in the late 15th century as the last ruler of Andalus. Aisha was believed to be the daughter of **Sultan** Muhammad IX of Granada. Her marriage to Abu I-Hasan Ali, the successor to the throne, was an unhappy one. It became even more unhappy after Abu I-Hasan Ali became infatuated with and married a young Christian prisoner of war named Isabel de Solis. The implications of the situation were troubling, especially since Fernando and Isabel were threatening Granada from the north. Did the Sultan not realize that his love affair with an enemy captive would appear

as a betrayal? In 1482, Aisha decided to take action. She sought help from the Abencerrajes, a powerful family, and then placed her son on the throne.

Unfortunately, Abu 'Abdallah was not up to the task and ultimately lost Granada to the Christians, who called him **Boabdil** "the Unlucky." When he surrendered the city on January 2, 1492, seven centuries of Muslim rule on the Iberian Peninsula came to an end.

In a final moment of shame, the defeated Sultan took one last look at Granada from a hilltop overlooking the city and, supposedly, burst into tears. Aisha is said to have remarked, bitterly, "You do well to weep like a woman, for what you could not defend like a man." The

hilltop was known thereafter as *El Ultimo Suspiro del Moro* ("The Moor's Last Sigh"). Aisha did all she could to save Muslim Spain, but finally accompanied her son into exile in Fes (also spelled Fez), Morocco. The date of her death is unknown.



Sultan refers to the king or ruler of a Muslim state or country.

Boabdil was a Spanish interpretation of how to say his name.

Eleanor of Viseu

Around the same time, another Iberian queen, Eleanor of Viseu (1458–1525), was also aiding her people. Eleanor was descended from a long line of royalty. When her husband, King John II, assumed the throne in 1481, it was an exciting, yet challenging, time. Corruption had bankrupted the nation, but new opportunities for economic growth were emerging as Portugal, thanks to such people as Henry the Navigator (John's uncle), began exploring Africa and South America. In addition, John was admired by other European powers. Even his cousin Isabel, of rival Castile, referred to him as *El Hombre* ("The Man"). And the often-used phrase "behind every great man is an equally great woman" describes Eleanor. She definitely believed it and stood by her husband, even when his crackdown on corruption claimed members of her own family.

Eleanor was also known for her generosity. She established numerous hospitals and religious institutions and took special pity on the poor, the ill, and orphaned children. Traveling through the west-central Portuguese province of Estremadura in 1484, she encountered some peasants bathing in a hot spring of sulphurous, foul-smelling water. Upon learning that the waters had healing powers, she tried them herself and was cured of an ailment. Soon after, she founded a hospital on the site, selling her jewels and using her own money to fund the project. The town that grew up around the hospital was named for her—*Caldas da Rainha* ("the Queen's Baths"). Eleanor was especially beloved by her people because she was a native of Portugal, not a foreign queen, as was common throughout other kingdoms in Europe at the time. In fact, it is still common for European royals to marry foreigners.



Sayidda al-Hurra

By the time of Eleanor's death in 1525, the Iberian Peninsula was controlled by Fernando and Isabel. Many Muslims and Jews were forced to flee, including the family of one bold and daring young woman, who not only became not only a governor, but also a pirate.

Sayidda al-Hurra was born around 1485 to a noble Muslim family, the Banu Rashid, in Andalusia. Her real name is unknown.

Sayidda al-Hurra is a title meaning "an independent, noble woman."

Forced to flee to Morocco after 1492, she married the governor of the major port city of Tetouan. Upon his death, she became governor and refused to relinquish the title, even after she married the king of Morocco.

Some say Sayidda al-Hurra sought vengeance for her family and her people by allying herself with one of the most notorious

Turkish pirates of the North African coast, Barbarossa of Algiers. Others believe the move was political. Whatever the case, the two ruled the waters of the eastern and western Mediterranean during the early

16th century, capturing and robbing Spanish and Portuguese ships and ransoming hostages. The fact that she was able to govern Tetouan effectively, while at the same time overseeing pirate raids, demonstrates that she was a woman of ingenuity, courage, and considerable energy. It is interesting to note that she probably never set foot on a pirate ship herself.

Sayidda al-Hurra was both feared and respected by her Spanish and Portuguese enemies, all of whom regarded her as a worthy adversary. Her reign came to an end in 1542, when she was overthrown

by her stepson.



Tom Verde is a freelance journalist who writes about Christian-Muslim relations throughout history.



The Queen's Grammar

by Sarah Novak

Grammar might not be your favorite subject. All those rules about how language works—verb tenses and personal pronouns and direct objects—can seem unnecessary. Queen Isabel would have agreed with you, at least, at first. But Antonio de Nebrija, who considered grammar to be the “highest science,” would not have agreed.

Born in Spain in 1444, Nebrija studied the literature and languages of the classical world, including Latin, like many other scholars during the Renaissance. He became a teacher (the 1496 illustration above shows him seated in the middle, teaching a class) and author, writing about religion, poetry, botany, astronomy, history—and grammar. In 1492, Nebrija’s *Gramatica de la lengua*

castellana (“Grammar of the Castilian Language”) set down the rules for Spanish as it was spoken and written in Castile. Nebrija’s book was the first grammar guide to what is called a Romance language, the family of languages that includes French, Italian, Portuguese, Romanian, and Spanish. These languages have their roots in Latin, the language of the Roman Empire. But, by the Middle Ages, Latin had become the language of universities and churches, and the Romance languages were used in everyday life.

Soon after Christopher Columbus set off on his first voyage of discovery in 1492, Nebrija presented his grammar book to Isabel. **Interestingly**, the queen was not impressed. “Why would I want a work like this? I already know the language,” Isabel responded. But Nebrija explained that grammar was of utmost importance to the queen’s growing empire, and to her fame. The people of her new lands needed one language everyone could learn and understand, so they could follow her laws, he noted. Also, unless the Spanish of the future was the same as the Spanish that was written during Isabel’s time, eventually no one would be able to read about her great accomplishments. The queen was convinced.

Sarah Novak is a writer who specializes in historical byways and curiosities.



THIS 20TH-CENTURY postage stamp is from the Republic of San Marino, a small country within Italy. The stamp's image depicts Christopher Columbus with the three ships of his 1492 voyage in the background. Columbus gestures, with one hand, to some distant location—perhaps the new route he hopes to discover to Asian lands. His other hand rests on a globe of the world. The terrestrial globe, showing a round map of the earth, dates to ancient times, so it is not surprising to see one in an illustration of Columbus. However, look closely. What's wrong here? See page 40 for the answer.



Was there ever a Count Dracula?

—Anne, Web post



THE VAMPIRE we know as Count Dracula was actually a creation of the Irish author Bram Stoker, who wrote the novel *Dracula* in 1897. Stoker did, however, borrow the name “Dracula” from a real 15th-century leader. *Dracula* was a title of a ruler named Vlad III of Wallachia, a region in the country known today as Romania. The name meant “son of the dragon,” because his father had been known as *dracul* (“dragon”). The title identified the father as belonging to the Order of the Dragon, a society of knights tasked with fighting the Ottoman Empire and protecting Europe from invasion by Muslims. Vlad II’s proper title was not “count” but *voivode*, a title that translates to something like “war lord.”

—Calliope



Q I live near lots of woods and see many dead trees. Can I just count the tree rings to find the date of a downed tree?

—Mary Jo, Web post

A WHILE TREE-RING growth is different for different species of trees, most trees add a ring every year. The separation of the rings reflects the fact that the tree grows at different speeds every season, causing the lines. The inner ring is from the spring, while the thinner, denser part that forms the outer edge of the ring is from the summer and fall. New rings start in the spring. So, by counting the rings, you can tell roughly how old the tree is. In archaeology, we use the rings to match up patterns in the size of the rings over long periods of time in order to estimate the dates of old pieces of wood.

—Dr. Dig



Q How do archaeologists find out what dinosaurs ate? Also, can you do an issue about cats?

—Jessica F., age 14

A PALEONTOLOGISTS, THE people who study dinosaurs, make educated guesses about what dinosaurs ate based mostly on the types of teeth each species had. They can use parallels between living creatures and dinosaur fossils to understand how the teeth would work. Sharp teeth would seem to indicate meat eating, since they are used by modern predators to tear at flesh. Flatter teeth would be used for cutting plants and grinding. Dinosaurs with bills possibly ate water plants. Long beaks on creatures such as pterosaurs might indicate a preference for fishing. A new issue about cats would be cool!



We're all for an issue on cats! Pegasus would love it, and so would Mudd!

WHICH ARTICLE DID YOU ENJOY BEST IN THIS ISSUE? WHY? DID IT TELL YOU SOMETHING YOU DID NOT KNOW? DID IT MAKE YOU WANT TO LEARN MORE? DID IT SURPRISE YOU WITH ITS FACTS?

Write and tell us!
dig@cricketmedia.com
CALLIOPE/DR.DIG, 70 East Lake Street, Suite 800, Chicago, IL 60601
Or have your parent/legal guardian email: dig@cricketmedia.com



Lakota Winter Count

I really loved your article about the Lakota Winter Count. It was very informative! :)

Also, I just wanted to point this out, in your Fun with Words illustration, where readers can try and find the words in the drawing and then check their answers, you didn't include Janus, the two-headed minor god, or May, the Roman goddess of springtime, in the answers on page 39. Is this on purpose or an accident?

Your friend and fan,
Carmen M.

You are right! We have them marked here! Not every word is included in the drawing, but these were missed. Thanks, Carmen!



Answers

Answers: Hidden Sword, pg 09: The sword is in the upper right corner of the photo on page 8. For more about the sword, read the article on pages 6–8.



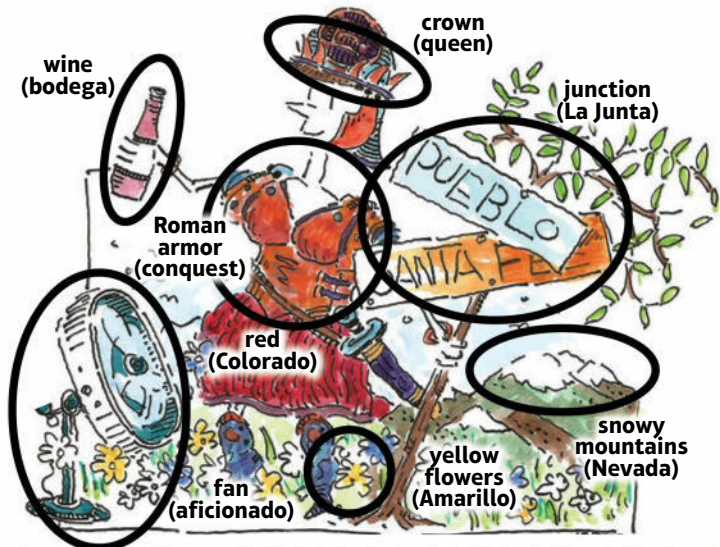
Joke



Q: If a dictionary goes from A to Z, what goes from Z to A?
A: A zebra

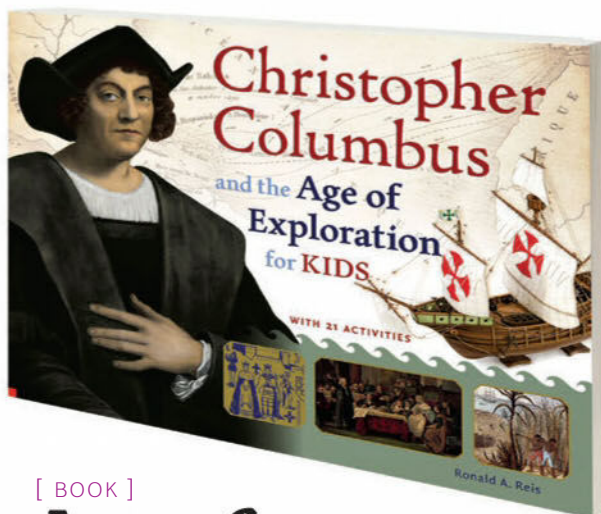
Answers

Answers: What's Wrong Here?, pg 37: The globe in the illustration of Columbus shows the outlines of the North American continent and some of South America. But the existence of these lands was unknown to Europeans—and to Columbus—until he landed in the Bahamas in 1492. (Norse explorer Leif Eriksson is thought to have voyaged to what is now Newfoundland, part of Canada, in the year 1000, but these discoveries were generally unknown in western Europe.) So Columbus's globe here shows a map of the "New World" that Europeans had not yet discovered or explored.



This issue's EAGLE EYES are on pages: TOC, 4, 22, and 51.

OFF THE SHELF



[BOOK]

Age of Exploration

Christopher Columbus and the Age of Exploration for Kids by Ronald A. Reis (Chicago Review Press, 2013, www.chicagoreviewpress.com) transports readers to 15th-century Spain, introducing them to the beliefs and practices of the time, especially with regard to exploration of the New World. What makes this book unique are its 21 activities that include making hardtack, creating a coat of arms, and simulating a lunar eclipse. One to add to your resource corner!

ON THE NET

➔ This Web site is titled: Medieval Spain—Muslims, Jews, and Christians—well worth a visit:
<http://abacus.bates.edu/~bframoli/medieval/description.html>

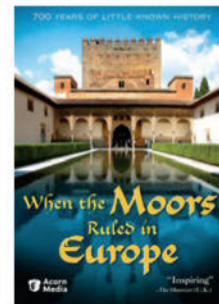
➔ Here's a BBC timeline on the history of Spain that starts with 1492 and ends with 2016:
www.bbc.com/news/world-europe-17955805

➔ An interesting Web site, it offers a history of Spain by century and is accompanied by art related to the time period:
www.wga.hu/tours/spain/index3.html



[BOOK]

Under Water, Under Earth by Alexandra Mizielska and Daniel Mizielski (Candlewick Press, 2016, www.candlewick.com) is terrific, well-written, profusely illustrated, informative, engaging—really a great way to “dive below the surface” of our planet and learn who lives there, what we have built there, who travels there, and much, much more.



[DOCUMENTARY]

When the Moors Ruled in Europe (2008, Acorn Media Group, www.acornonline.com) is a documentary that focuses on the history of Islamic rule on the Iberian Peninsula. It offers new insights into this fascinating period of history and explains—illustrates as well—how the Moorish influence played an integral part in Europe's move into the Renaissance period. Well done!

Check These Out, Too!



[BOOK]

Learn to Speak Fashion: A Guide to Creating, Showcasing, and Promoting Your Style by Laura deCarufel (Owl, 2012, www.owlkids.com) will make even the least-fashion conscious reader understand and appreciate fashion's role in society and history. A neat read!



[BOOK]

Mayhem's Fountain by J.A. Bove (iUniverse, 2010, www.iuniverse.com) takes you to the 17th-century and the search for Atlantis, when a pirate named Mayhem takes the “Eye of Atlantis” that tells where there's a horde of gold. But his quest is not an easy one because Atlantis' prince is determined to stop him. What follows is a fast-paced tale full of suspense, adventure, mermaids, and much more.

Cricket Resources

Europe's Eleanor of Aquitaine (DIG1603)

A Rebirth in Europe (DIG1503)

Portugal and Spain Divide the World (CAL9804)

Travel the world without a passport.

When is a waterfall not a waterfall? When it is actually 270 waterfalls! Iguazu Falls, located on the border with Brazil, is one of the most breathtaking sites in the world.

Some of the earth's largest dinosaurs once roamed what is now Argentina. The region known as Patagonia was home to the Titanosaurs, the biggest known dinosaurs.

Argentina's national sport once involved a duck! Pato, a game played on horseback, now uses a leather ball with six handles in place of a duck.

Discover people, places,
and cultures with
FACES® Magazine
ages 9 - 14

Subscribe at Shop.CricketMedia.com/Try-Faces



2017 6th Annual Global **Invent It Challenge**

Think about a real-world **environmental** issue
and come up with a planet-friendly solution.

Submit your invention by March 17, 2017
No purchase necessary to win.

For entry information and eligibility, go to
Challenges.Epals.com/InventIt2017



Smithsonian



Diving into the Past

Today, history books often refer to the 15th to 18th centuries as the Age of Exploration, or the Age of Discovery. And, for Europeans heading west across the Atlantic, it definitely was.



Fernando most likely encouraged his wife's support of Columbus and voyages west across the Atlantic, as he, too, recognized the value of a sea route that avoided the heavily traveled trades routes across the Mediterranean Sea and around Africa.

For Isabel and Fernando, any shipwreck in deep, deep waters was gone forever. But today, that is changing as remotely operated AUVs search the ocean floor, finding wrecked ships and their contents. Who knows what they will uncover that dates back to the Age of Exploration!

When Isabel agreed to finance Columbus's voyages west, she most likely gave little, if any, thought to conserving or preserving his ships or equipment. Whatever survived the voyages, as well as being shipwrecked, was usually re-used or re-purposed.

A Search That Continues

by Toni Carrell

In 1492, Columbus sailed the ocean blue.... But did you know that he also sailed in 1493, 1498, and 1502?

The Ships

Santa Maria was the flagship on Columbus's first and most remembered voyage. Two other ships accompanied it: *Nina* and *Pinta*. *Santa Maria* ran aground on a sandbar off Cap Haitien in Haiti on December 24, 1492, and sank the next day. Columbus returned to Spain with the *Nina* and *Pinta*, both of which would make other voyages with him.

In November 1493, Columbus returned to Haiti to



This line drawing recreates how a ship dating to about 1492 would have wrecked.

establish a colony at Bahia Isabela, on the east coast of what is now the Dominican Republic. This time, instead of a fleet of three, he sailed with 17 ships and nearly 1,200 people! In the summer of 1494 and again in 1495, devastating hurricanes struck the settlement and destroyed at least eight ships.

For his third voyage in 1498, Columbus had only six ships. This was a voyage of exploration, and it took him from Trinidad to the coast of Venezuela. Columbus eventually returned to Spain in October 1500.

While no ships were lost during the voyage, the fate of the six ships is unknown. Most likely, they all returned to Spain.

On the fourth voyage in May 1502, Columbus searched for the westward passage to the Indian Ocean. He left Spain with four ships—*Capitana*, *Gallega*, *Vizcaina*, and *Santiago de Palos*. After stopping at Martinique and then briefly at Santo Domingo, they traveled on to Jamaica and Central America, spending months exploring the coasts of Honduras, Nicaragua, Costa Rica, and Panama.

On April 16, 1503, Columbus abandoned *Gallega* on a sandbar in the mouth of the wide and fast-moving Belen River. A week later, he beached the leaking *Vizcaina* on the shoreline at Portobelo in Panama. The now-overcrowded *Capitana*

and *Santiago de Palos* set sail for Santo Domingo, but were damaged in a storm off the coast of Cuba. Unable to continue, both were beached in St. Ann's Bay, Jamaica.

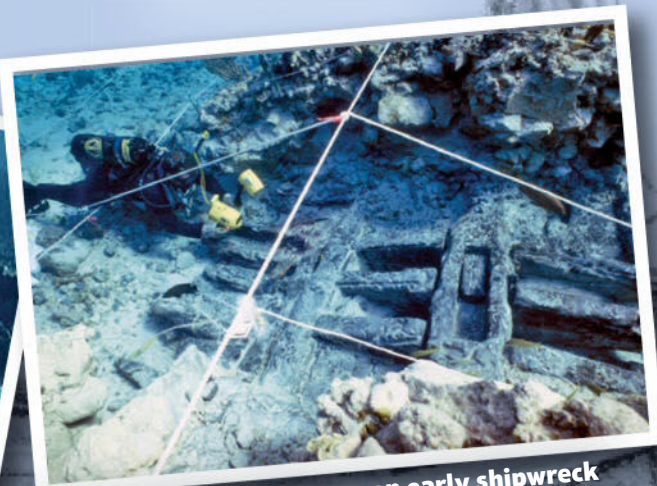
Where Are They?

Today, Columbus's nine ships are among the most sought-after ships in the world. Many searches, claims of discovery, and breathless news releases have raised hopes of finding them. Nothing, however, has ever come of these claims.

We know that *Santa Maria* ran aground on a sandbar off Cap Haitien. Because the ship was beyond repair, and *Pinta* and *Nina* had limited space, Columbus decided to leave 39 men behind. But Columbus could not just leave them stranded; he had to provide them some shelter. The crew included sailors as



Archaeologists looking for shipwreck artifacts



Archaeologists working on an early shipwreck

well as skilled craftsmen, so together they salvaged everything they could from the wreck to build the small fortress of La Navidad. Most likely, they also removed the metal rigging, anchors, artillery, and other equipment to use for the fortress and to restock *Pinta* and *Nina* for the voyage home. In the year it took for Columbus to return, the stranded men and local native population probably continued to salvage *Santa Maria* for whatever they might be able to use to sustain themselves.

Difficult Conditions

The records from the first voyage do not tell us exactly how far offshore or exactly where the sandbar was in relation to landmarks that exist today. However, because it was a shallow sandbar, every time a big storm or hurricane swept across the island, both the sandbar and

the ship were affected. So, after more than 500 years of storms, it is no wonder that *Santa Maria* has not been found.

Some documents suggest that a few of the ships destroyed in the hurricanes of 1494 and 1495 were salvaged and used to construct new ships that moved colonists to Santo Domingo. Several expeditions have searched in vain for these lost ships that now are believed to lie buried under about 10 feet of mud, dead coral, and debris in Bahia Isabela.

On his last voyage, Columbus was forced to abandon all four of his ships, two in Panama and two in Jamaica. Realizing that rescue would take months, Columbus ordered that *Capitana* and *Santiago de Palos* be salvaged and the materials used to build a fortress.

The shorelines at Portobelo and St. Ann's Bay are exposed to wind-

driven waves, hurricanes, and storms. There is no doubt that the crewmen and local native peoples salvaged everything they could for as long as they could from all of the ships. Anything metal was especially prized and much desired. In addition, the fact that Columbus never recorded the exact locations of the losses and the fact that no firm landmarks were ever described that could be used as a guide today make finding surviving remnants of the ships more difficult. It is true that the general course of the Belen River has changed little over the past 500 years, but the sandbars inside the mouth have been in constant change. St. Ann's Bay and Portobelo have also seen a lot of use, river runoff, erosion, and sediment build-up.

Will They Ever Be Found?

Present-day archaeologists do have a variety of tools to search for shipwrecks. But, because the nine ships were wooden, heavily salvaged, and lost in areas that have been and continue to be impacted by storms and waves, finding them will be a challenge. Still, archaeology teaches patience, and we are reminded that we must NEVER say "never."

For more than 30 years, maritime archaeologist **Toni Carrell** has worked worldwide on shipwreck sites, dating from the earliest period of European exploration to WWII.

The search team looking for shipwrecks



NOAA and Shipwrecks

by James P. Delgado

The National Oceanic and Atmospheric Administration (NOAA) studies and forecasts the weather. It also studies and works in the oceans. One part of NOAA looks after fish, while another continually maps America's coast, harbors, and river mouths as they change over time. Another part explores the deep ocean, mapping the geography of the depths, sometimes miles down, discovering strange new life forms and shipwrecks. Yet another part of NOAA looks after America's national marine sanctuaries and marine monuments, special places set aside to protect coral reefs, endangered species, and shipwrecks.

As a result, NOAA's Office of Coast Survey is the home of a national online database that anyone can search, for free. Known as the Automated Wrecks and Obstructions Information System (AWOIS), it lists more than 13,000 shipwrecks in

American waters (see below). In addition, NOAA maintains online sonar maps of the sea floor, which include shipwrecks. Some of these show wrecks that still amazingly look like ships, even after sinking and sitting in the ocean for many years. Others do not look like vessels, except to trained eyes that know or suspect that a strange pattern of lumps

and lines in the mud or sand may be a broken-up wreck. The National Marine Sanctuary (NMS) system protects around 4,000 of America's wrecks. Some are hundreds of years old. Others sank recently. Two sanctuaries were created just for shipwrecks. They are USS Monitor NMS off North Carolina, and Thunder Bay NMS in Michigan.



A Find!

by James P. Delgado

The oceans cover 73 percent of the earth. What is even more amazing is that humans have only explored five percent of their depths, and it has only been in the last few decades that humans have been able to go to the deepest parts. There, scientists and explorers have discovered new life forms, undersea volcanoes, mountains, and canyons. They have also found lost ships, some dating from thousands of years ago to many lost in modern times—the *Titanic*, for example.

To reach depths of thousands of feet, even miles down, ocean scientists and engineers have developed a variety of

technologies. These include using sound to make detailed sonar maps of the bottom of the sea; robots that can go deeper than scuba divers; and submersibles that carry pilots and observers as far down as seven miles. (See also pages 54–56.)

Archaeologists now use these same technologies, not only to discover, but also to study shipwrecks deep in the ocean. In recent times, archaeologists have joined ocean scientists to study the remains of three wrecks in 4,300 feet of water in the Gulf of Mexico. Known as the “Monterrey wrecks,” the three date back more than 200 years. Most likely they were sailing together when they sank in a

violent storm.

Among the artifacts resting on and by these ships are the crew’s tools and weapons, personal items, tableware, and what may even be books, buried now in mud. The presence of so many artifacts and the way they are lying on the bottom suggests to archaeologists that no one survived to tell the story of this disaster.

The discovery of the Monterrey wrecks happened as an oil



Copper sheathing covers the vessel's stern post and aft part of the lower hull. The rudder attached to the stern post has been twisted around to the left, or port, side, making it difficult to see in this image. This type of damage suggests the vessel impacted the seafloor stern-first, displacing the rudder. Two draft marks made of lead are visible on the stern post.

company surveyed the area before drilling in it. Company managers then reported the find to the U.S. government. Many finds, however, happen by accident.

Recently, scientists from Duke University, Woods Hole Oceanographic Institution, North Carolina State University, and Oregon State University were studying deep-sea chemistry off the coast of North Carolina. The area is known as Blake Ridge, and the water there is more than a mile deep. While

searching for a lost instrument, the crew inside the submersible *Alvin* followed a path to a sonar image. The instrument was nowhere to be found, but the lights from the submersible revealed an old shipwreck lying buried in the mud, with its anchor and a chain from the anchor stretching out across the bottom.

There were no archaeologists in the submersible, and none on the

research ship. So, once *Alvin* returned from the bottom of the sea, the scientists contacted archaeologists at NOAA's Office of National Marine Sanctuaries' Maritime Heritage Program. It was this NOAA team that had helped organize and been part of the Monterey wrecks project.

Working from the video and photographs collected by the Blake Ridge team, the NOAA archaeologists determined that the wooden ship probably dated to about 200 years ago. The evidence for this is the artifacts they saw on the bottom, inside the wreck. The bottles and ceramic jars (see one in photo opposite) were of a type that was made and used after 1800, although one jar may be older. It is possible that the style of the bottles may date to after 1820.



***Alvin* (seen here descending to its maximum depth of 4000 meters, that is, 2.5 miles), is operated by Woods Hole Oceanographic Institution (WHOI). *Alvin* has been in operation since 1964. It was affectionately named after WHOI engineer Allyn Vine, whose influence was pivotal in *Alvin*'s conception. A legendary figure at WHOI, Vine first envisioned a deep-sea research vessel in the 1930s, when he was a graduate student in physics.**

Nothing, however, that they could see had a date stamped or written on it. There was one amazing object lying in the wreck—a wood and brass instrument known as an octant (see opposite). Octants were used by a ship's officers to help them

in navigating their course at sea, by taking measurements using the position of the stars and the sun.

The octant was made from a rare, dense wood known as ebony. It is similar to octants in museum collections that date to around 1760. But, just as with old bottles and jars, people often use some objects for a very long time. For archaeologists, it is the newest find discovered on a wreck, not the oldest, that provides clues to when a shipwreck happened. On the Monterey wrecks, a small collection of coins and the artifacts found on them suggest the vessels sank no earlier than 1818.

Nothing with a date on it has yet been found at the Blake Ridge wreck. Thus, it remains an untouched "time capsule." What

Setting out to sea here is the WHOI research vessel *Atlantis*, the host vessel for *Alvin* (attached to the crane).



does seem certain is that it was a small ship and not expensively built or used in war. There are no guns, and it does not have any copper sheets attached to it. Copper was used on the bottom of ships beginning sometime after 1790 to keep marine organisms from eating the wood. There is no large collection of artifacts and no ship's stove, only a pile of bricks once used as a fireplace for cooking. Nearby is what looks to be a buried iron pot, perhaps from the cook's area, a place on a ship known as the "galley."

What was the ship's port of origin? Who were its crew? Did any of them survive? Why did it sink? The questions are endless.

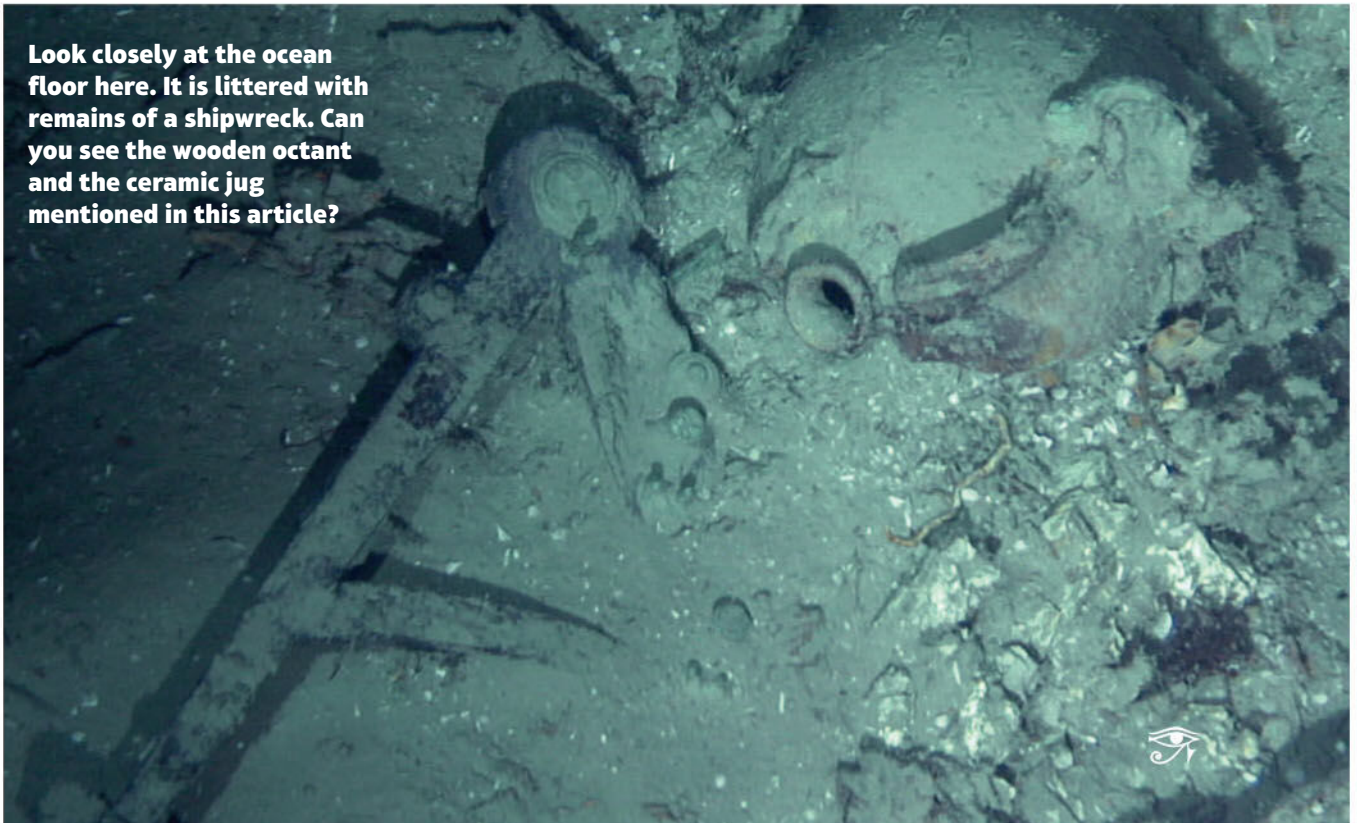
However, without more study or some excavation by archaeologists to bring artifacts to a laboratory, there is not much more we can say. The wreck lies in an area where a fast-moving ocean current, the Gulf Stream, runs with the strength of a mighty river in the sea. We know that ships have used this Gulf Stream for centuries as a water highway. So, the ship may have come from the north, along the American coast, or it may have come from the Caribbean. Caught in a storm, damaged and sinking, it may have gone down fast, carrying everyone on board with it. Its loss may never have made the news, leaving families

hundreds of years ago wondering what happened to it and to the people they knew aboard.

The science team is planning to return, with archaeologists. Maybe then more clues, and perhaps even some answers, may be discovered. The Blake Ridge wreck is a reminder that archaeology happens even at the deepest parts of the ocean, that many things remain to be discovered, and that history and archaeology are often about ordinary people, places, and objects—in this case, a humble vessel whose story may, at last, be told.

James P. Delgado is an archaeologist who has worked on shipwreck projects around the world for nearly 40 years.

Look closely at the ocean floor here. It is littered with remains of a shipwreck. Can you see the wooden octant and the ceramic jug mentioned in this article?



The Colors of Sound

by Vitad Pradith



Ancient Egyptians use a sounding pole (man to far right) to measure water depth.

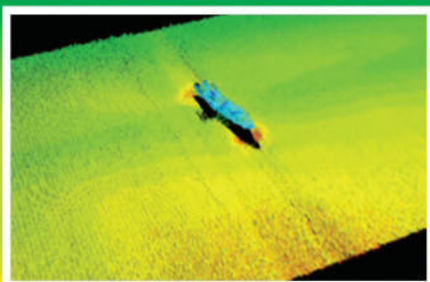
Measuring the seafloor is an ancient science, and the first known depiction of this technique can be seen in the image above. Here, an ancient Egyptian is using a sounding pole to determine the water depths by measuring how much of the pole enters the water until it touches the bottom. This field of study that determines the measurement of the seafloor is called hydrography. While the tools used to measure the seafloor have evolved through the millennia, the purpose of hydrography has remained constant, allowing vessels to safely

navigate waterways. Today's hydrographers are equipped with several tools that help them derive a picture of the seafloor. One of the primary tools is called "Sonar."

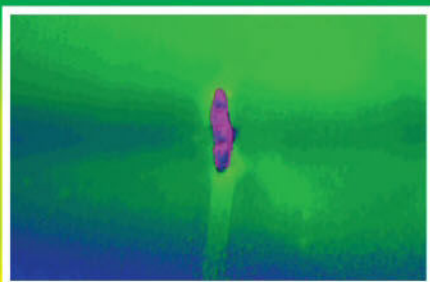
Sonar is an acronym that stands for **SO**und **N**avigation **A**nd **R**anging. The term "Sonar" was first coined in the 1930s by American engineers for military use. This technique uses acoustic (sound) pulses to determine depth and imagery from the seafloor. The coloring of the seafloor, as seen using hydrography, is intended to warn sailors about potential dangers. It is also an indicator as to where to navigate

vessels safely while underway.

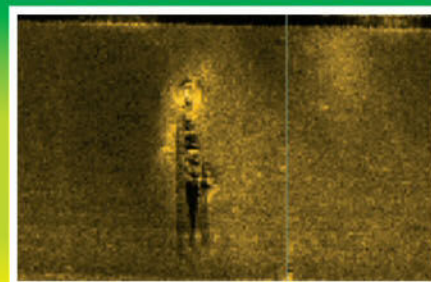
Hydrographers use what is known about human psychology and perception to communicate different pieces of information. For instance, the color red is typically synonymous with danger—hence the use of it by hydrographers to signal dangerous areas. Some further examples of when to use different color schemes include highlighting seafloor features, looking at erosion around a bridge, and of course, picturing shipwrecks. One of the main images derived from using this technique is called a bathymetric surface, which is, in more



Bathymetric model of a shipwreck using an Autonomous Underwater Vehicle (AUV)



Another SONAR image of the same shipwreck, but colored in a different manner



Side-scan imagery of the same shipwreck

common terms, a model of the seafloor.

Hydrographers can manipulate the color of the surfaces they are imaging in many ways. Since blues and purples, for instance, are typically perceived as cool and calming, they can also be used to signal safe water to the sailor. Sonar can also offer a different way of looking at the seafloor, including providing two-dimensional or monochromatic (one color) images. It is similar to peeling back the water and taking a photograph of the seafloor.

One of the common sensors used to acquire imagery is the Side-Scan Sonar. While this type of sensor does use acoustic energy to get a picture of the seafloor, the different methods it uses to produce the imagery offer different views. Side-Scan Sonar provides the hydrographer with another “look” at the seafloor or features of interest—shipwrecks, for example. This type of data also allows the hydrographer to interpret a hard versus soft seafloor.

In much the same way as artists use their palettes, hydrographers can activate different “colors” using different acoustic frequencies to paint a canvas of the seafloor. In doing so, they can reveal everything along this floor. Thus, hydrography is the perfect union of art and science.

.....
Vitad Pradith is an active hydrographer, who is currently interested in the use of robotics to map the seafloor.

IN THE HEADLINES

Views of an Antique Land

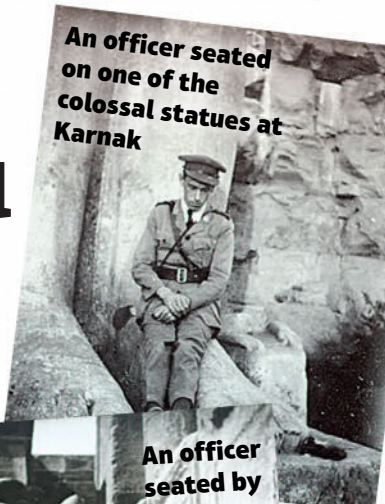
Photographs taken in Egypt and Palestine during the First World War (1914–1918) may seem a long way from ancient Egypt, but actually they have a lot to tell us. In a project called “Views of an Antique Land,” we are collecting digital scans of old photographs taken during the war (three shown here). This is very useful because many of them have dates, and we know that all of them were either taken by soldiers, airmen, nurses, and others between 1914 and 1918 or were bought by them during the war.

Why should this matter? Well, because the soldiers were not usually archaeologists, they simply took tourist snaps of the places they visited without knowing which bits of the site were important and which were not. That means that sometimes they have photographed important features that no longer exist, as the site has been altered for visitors. It also means that we can show people how Egypt and Palestine looked around 100 years ago. Often the descendants of the soldiers have very little information about what their ancestors saw or did, and our website, which uses the photographs, will help to inform them.

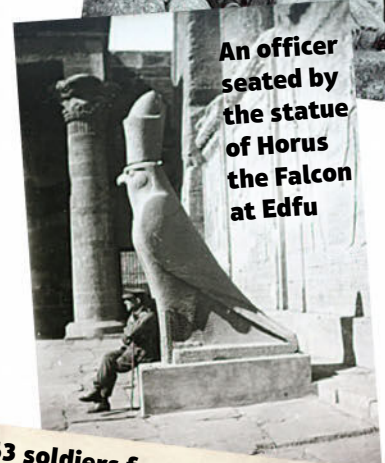
In any case, 100 years is a long time and the camps in which soldiers lived and the battlefields where they fought are now considered archaeological sites. Pictures of these places help us to understand what the camps and battlefields looked like. They are very different from the muddy trenches of the Western Front in Europe!

We hope that our project will help people understand the difficult

by Paul T. Nicholson, Steve Mills, and Hilary Rees



An officer seated on one of the colossal statues at Karnak



An officer seated by the statue of Horus the Falcon at Edfu



63 soldiers from Mena House Hospital (now Mena House Hotel) near the Sphinx and Great Pyramid

conditions that soldiers endured in the Middle East, tell people how they fought, and help archaeologists and historians find new views of the ancient monuments.

.....
Paul T. Nicholson is a professor of archaeology at Cardiff University, specializing in the archaeology of Egypt. **Steve Mills** is a senior lecturer in archaeology at Cardiff University and director of Views of an Antique Land Project. **Hilary Rees** is project officer for the Project.

For more about this project, go to: <http://sites.cardiff.ac.uk/ww1imagesegypt/>

Into the Deep with Robots

by Matthew Lawrence

The Deep Discoverer ROV investigates a shipwreck in the Gulf of Mexico.

Standing on a beach looking out to sea leads most of us to ponder the question, “I wonder what is out there?” The explorers among us grab a mask and snorkel to see for ourselves. Warm, sunny waters invite hands-on exploration, making for enjoyable vacations, but what about the vast majority of the oceans deeper than 40 meters (131 feet) and beyond the range of most SCUBA divers. Technological advances, driven by the military and the oil industry, have given archaeologists new tools to take them deeper. As a result, ocean exploration is becoming increasingly robotic.

Robots allow archaeologists to locate and investigate

shipwrecks and other submerged archaeological sites at depths beyond that 40-meter-easily-accessible depth. Robotic explorers generally fall into two categories, autonomous underwater vehicles (AUVs) and remotely operated vehicles (ROVs). Each type of vehicle has specific capabilities that make it better suited to certain kinds of research.

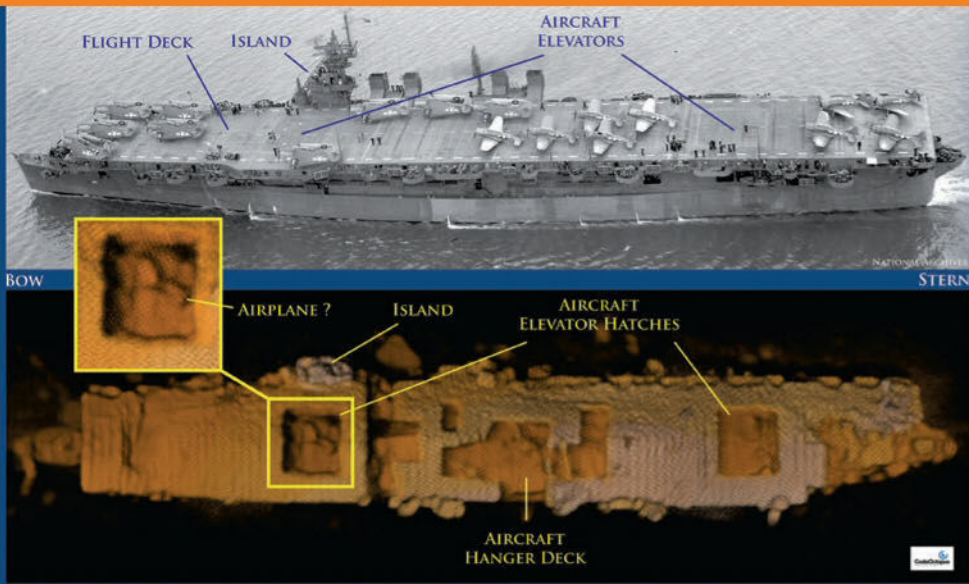
Secrets in the Deep

So, why would archaeologists want to spend the time and effort needed to locate and study a shipwreck in water deeper than they can reach by diving? Shipwrecks in the deep ocean can yield information about their place of origin or their early

history that has not been scrambled by the effects of waves. Fragile artifacts are also more intact when they have escaped wave action. Not surprisingly, shipwrecks beyond the reach of scuba divers also have better **site integrity**. Shipwrecks found in shallow waters are often like a book with its pages jumbled or ripped out.

Archaeologists seeking to discover deep ocean shipwrecks often need to locate sites dispersed over hundreds of square miles. Traditionally, this search used instruments such as side-scan sonar and cameras on long cables towed by a research vessel. Slowly driving a ship back and forth along specific parallel

Site integrity refers to an archaeological site's ability to yield information to answer important research questions.



Top: Historical image of the aircraft carrier USS Independence
Bottom: AUV-created sonar map of the sunken vessel located in Monterey Bay National Marine Sanctuary west of San Francisco, California

routes lets archaeologists map the seafloor and find targets to investigate. Thus, searching for archaeological sites in deep water meant that very long cables and large winches had to be used. These, in turn, made for a slow and very expensive survey.

Meet the AUV

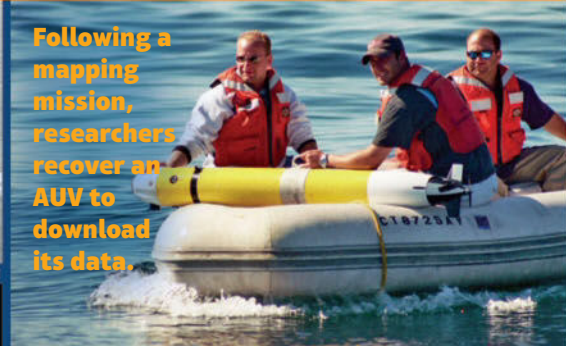
Autonomous underwater vehicles have revolutionized this search process. Rather than driving back and forth with a ship, archaeological research teams program torpedo-shaped, free swimming AUVs to navigate a specific underwater path and collect sonar and other data. Once the AUV has completed its mission, it returns to the surface to have its data downloaded and batteries recharged. AUVs can maintain a very precise altitude above the seafloor and are not affected by stormy surface conditions that would reduce towed sonar data quality.

While most AUVs are equipped to survey a large area, some also carry cameras to photograph a smaller area such as a shipwreck. When dispatched on a camera-imaging mission, an AUV navigates closely spaced survey lines so that each downward facing picture taken overlaps with its neighbor. Assembling all of the photos into a mosaic reveals a highly detailed image that is ideal for archaeological study.

Meet the ROV

Once an archaeological site has been located in deep water, archaeologists often turn to ROVs to continue their investigation. Unlike AUVs, ROVs are connected to

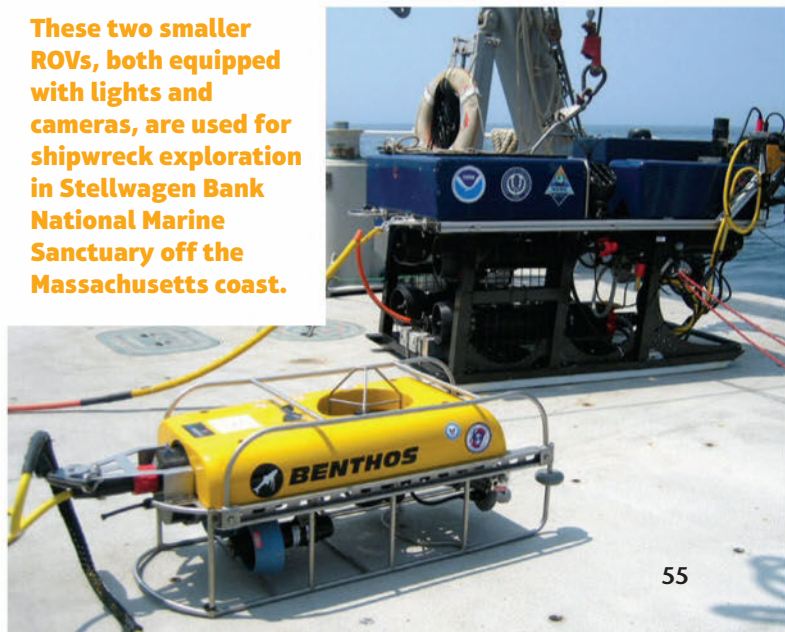
Following a mapping mission, researchers recover an AUV to download its data.



an operator, known as a pilot, by a data cable that also supplies power to the robot. The pilot and associated research team sit onboard a research vessel floating above the archaeological site under investigation. A very important feature of this robot is its instantaneous data feed from the seafloor to the surface. This connection allows the pilot and research team to guide the vehicle with continuously updating information from video cameras or scanning sonars. Whereas AUVs need to return to the surface to be charged, ROVs with teams of multiple pilots can investigate an archaeological site for days at a time, as long as the research vessel can stay on station.

ROVs come in many different sizes and configurations. Some of

These two smaller ROVs, both equipped with lights and cameras, are used for shipwreck exploration in Stellwagen Bank National Marine Sanctuary off the Massachusetts coast.



the smaller varieties only carry lights and cameras, while larger versions have robotic arms, underwater vacuums, and sample-collectors. These tools allow archaeologists to excavate an archaeological site in a precise manner, only recovering only specific artifacts for further study. The excellent preservation environment in the deep ocean challenges archaeologists to disturb only what is absolutely necessary to answer the research

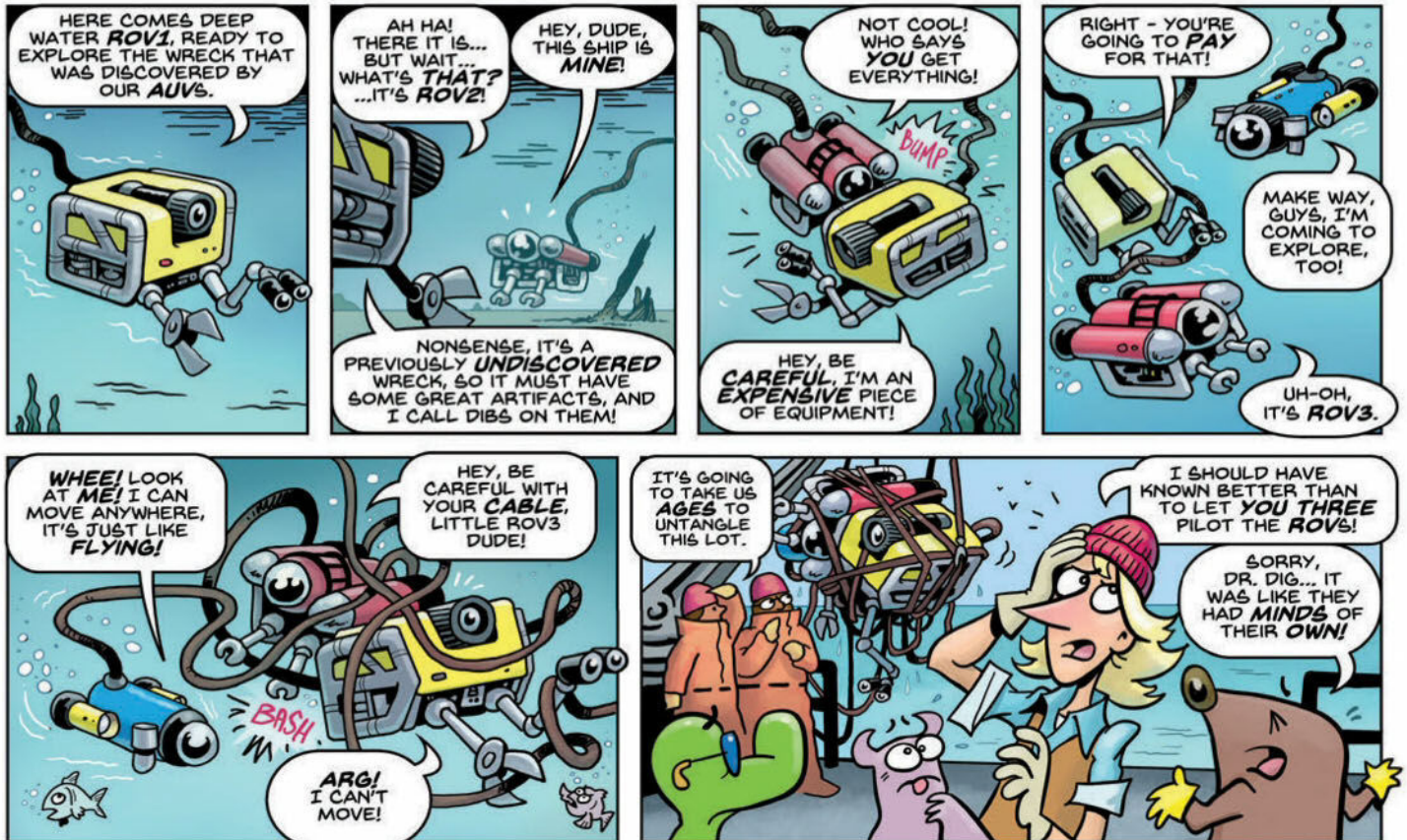
questions driving the project. Would-be deep ocean archaeologists can get a taste of what it is like to run an ROV mission through competitions organized by Marine Advanced Technology Education (MATE—www.marinetech.org) and SeaPerch (www.seaperch.org) that give students the chance to build and operate their own ROVs.

Discovery is at the heart of archaeology. We want to learn new things about the past that

help to tell us about our present and future. Once, the dark and cold realms of the deep ocean seemed inaccessible, but robotic technology can now take archaeologists to these previously unexplored places. This planet's watery realm hides untold stories that are awaiting the curious.

Matthew Lawrence is an archaeologist with the National Oceanic and Atmospheric Administration's Office of National Marine Sanctuaries. His interest in archaeology was first awakened through Native American excavations with his local archaeology club and has expanded to include maritime topics.

THE ADVENTURES OF dr. dig BY CHUCK WHELON

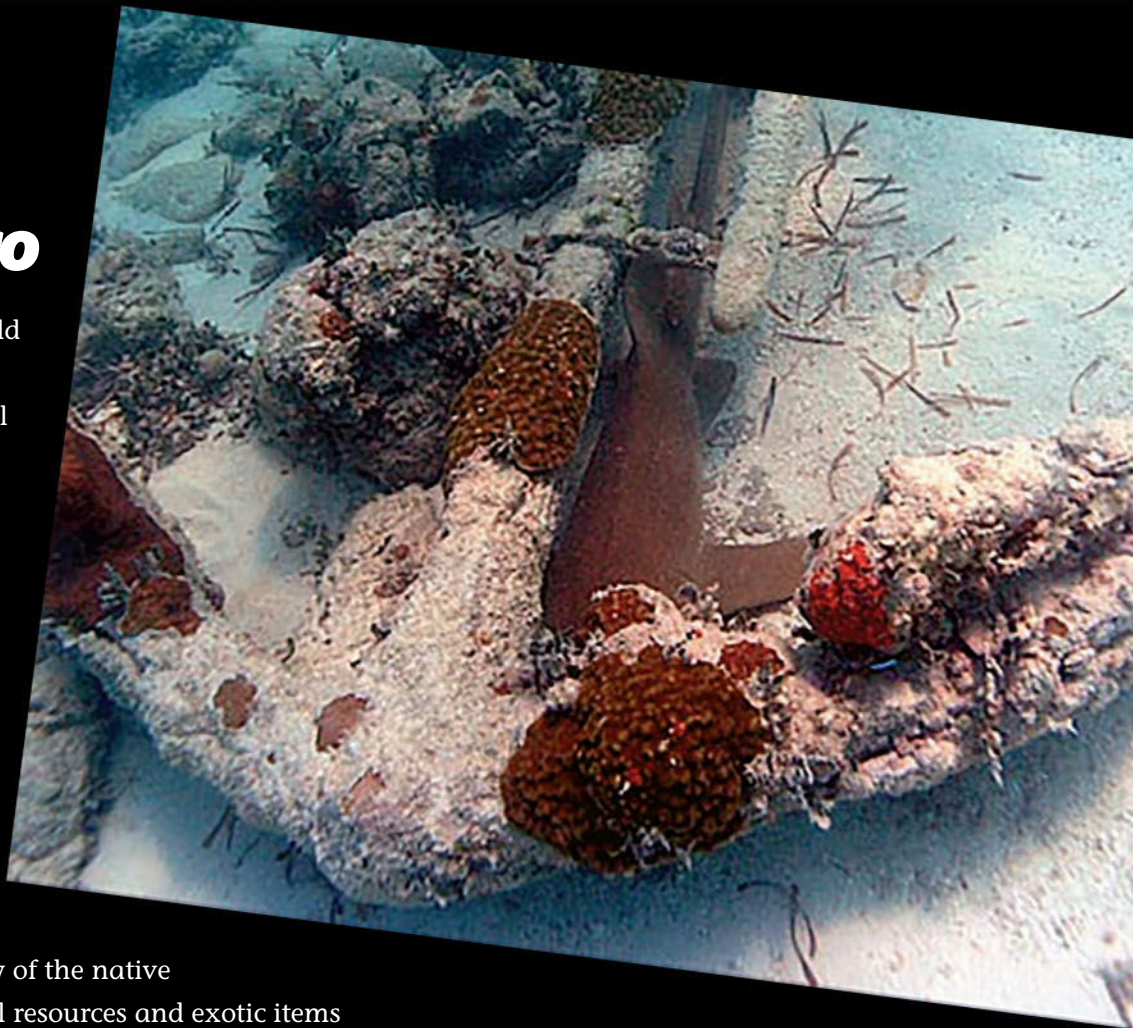


San Pedro

The New World Empire that Queen Isabel of Castile

helped to found soon became a jewel in the crown of Spain. Spanish *conquistadores* island-hopped through the Caribbean and quickly expanded their interest to the mainland of Mexico, South America, and into the North American continent—to the sorrow of the native inhabitants. The natural resources and exotic items Spanish explorers found and sent home inspired the envy of their European rivals. By 1537, Spain developed a convoy system to protect its annual fleets sailing between Europe and the American colonies. Bulky merchant vessels loaded with goods were guarded by powerful, armed galleons that also carried valuable cargo.

San Pedro was part of the Spanish fleet that left Havana, Cuba, on Friday, July 13, 1733, bound for Spain. Carrying goods, including chocolate, sassafras, indigo, hides, and tobacco, as well as precious metals, the 22 ships of the fleet were caught by a hurricane just two days later. Most of the ships were wrecked along the Florida Keys, sunk on the reef, or swamped in shallow water near shore. Spanish salvage crews were very successful in recovering much of the cargo, including more silver than was listed on official manifests—evidence of smuggling!



Today, *San Pedro* is one of the oldest artificial reefs in the Keys and provides a home for a variety of marine life—for example, the anchor pictured above. Colorful fish school over the wreck, while rock ballast furnishes hiding places for lobster and eels. Massive timbers of the ship's hull are visible in the white sand, and archaeological research has shown that more of the ship is present under the sediment. Although damaged by treasure hunters in the 1970s and 1980s, the shipwreck today is one of the most visited of the 1733 sites. You can visit *San Pedro*, too—but take only photos and leave only bubbles!

—Della Scott-Ireton

For more about *San Pedro*, click on:
<http://floridakeys.noaa.gov/shipwrecktrail/sanpedro.html>
www.museumsinthesea.com/sanpedro/index.htm

THEN & NOW

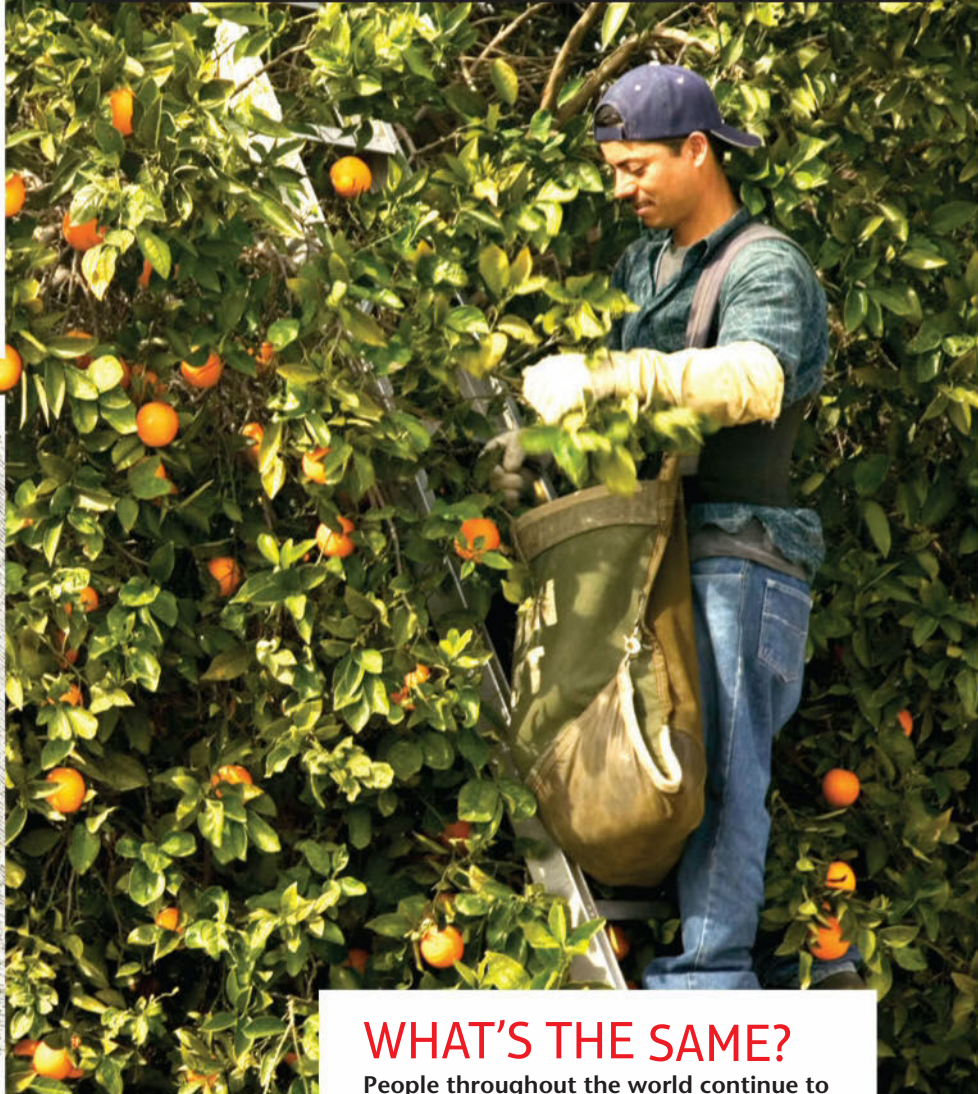
NOW: In the 19th century, the sweet Valencia orange began being hybridized for growing in California. This new variety was a combination of a Spanish and a California orange. A city in California is even named after the orange. Today, more than 60 percent of Valencia oranges are cultivated in the United States, mostly for orange juice. However, as these oranges have seeds and are difficult to peel, they are no longer popular eating oranges.



THEN: Valencia oranges trace their name to the Spanish city of Valencia, which, for centuries, has been honored as the orchard of Spain. The 19th-century Spanish girl pictured above is shown selling oranges. Growing these sweet oranges—the scent of whose blossoms is unforgettable—has, for centuries, been a very profitable business and a major industry in Spain.



March 2017 Volume 19 Number 3 cricketmedia.com \$4.95



WHAT'S THE SAME?

People throughout the world continue to love the taste of a juicy, sweet orange.

WHAT'S CHANGED?

Oranges are no longer a large or profitable part of Spanish agriculture. Aside from being grown in California, Valencia oranges are grown in greater numbers in Florida and regions of Texas, where the humid weather makes for a better, juicier orange.